

PHASE 1 - Dredging Plans and Specs Preparation

1. Initiation and Development Guide

- SOP for Construction Solicitations
- Approval of Amendment Form
- CT Checksheet
- EN Checksheet
- Sample Bid Schedule
- RTA Report for Final Submittal
- Sample BCO Letter (Maintenance)
- Sample BCO Letter (New Work)

2. Hydrographic Surveying Guide

**3. Dredging Quantities and Drawings Preparation Guide
Quantities and Drawings Guide – Appendix 1**

4. Dredging Specifications Guide

5. Subsurface Investigations Guide

**6. Dredging Projects Environmental Guide
Environmental Checklist**

PHASE 2 – Post Award

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- Contract Administration Process
- Rental Closeout Checksheet
- Unit Price Closeout Checksheet

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- Sample Quality Assurance Plan
- Construction Quality Management Program Compliance Assessment

9. Pre-Work Conference

- Sample Record of Pre-Construction Conference
- Sample Memorandum Transmitting Preconstruction Minutes

10. Lessons Learned Guide

INITIATION AND DEVELOPMENT GUIDE

1. Purpose

The following guide defines the process for initiation of P&S up to contract award for both new work and maintenance projects.

2. Applicable Regulations and Guidance

ER 415-1-11 Biddability, Constructability, Operability, and Environmental Review
ER 1110-1-12 Quality Management
ER 1110-2-1150 Engineering and Design for Civil Works Projects
ER 1110-1-8159 DrChecks

3. Background and Discussion

3.1 ACQUISITION STRATEGY (Annual based on dredging schedule)

Consider various contract formats: IFB, RFP, Best Value, Task Order, 8(a) negotiated
Dredge equipment: Pipeline, Hopper, or Mechanical
Schedule/Customer needs

At this point we can provide a dredging schedule to PD, EN, CT, etc to determine environmental clearance and real estate needs. The dredging schedule changes periodically and individual contracts not previously shown on the schedule will require individual acquisition strategy meetings.

3.2 ESTABLISH Project Manager (PM) and Project Management Plan (PMP)

On maintenance dredging projects, OP will designate a Project Manager which can be from OP, PM or another organization. On New Work, a PM will be assigned from PM organization.

NOTE: The PM term in this guide relates to the Project Manager, not the PM organization.

The PM authors a PMP which names representatives to the Product Delivery Team (PDT). Roles and responsibilities of the PDT members will be defined in the PMP.

The PM requests schedule from PAE, Generally Bid Open date and this drives development of schedule. PAE obtains CADD ID from EN-HH and starting file number for CADD drawings from EN-DW. PAE provides this information to PM, along with preliminary project schedule and EN budget. Then the PM schedules the PDT Kickoff meeting

3.3 PDT Kickoff meeting attended by:

PM

OP – OP-TN, OP-M, OP-GE/GW

EN – PAE, Spec Engineer (EN-DW), Cost Estimator (EN-E), EN-HH, EN-GG (if upland disposal, beach nourishment, beneficial uses or New Work dredging apply)

PD – Environmental Compliance and Biologist

RE, CT, OC

PDT reviews and confirms Acquisition Strategy and schedule

EXPECTATION:

PM initiates EN and CT Checklists in accordance with attached SOP for construction solicitations. Project Solicitation Checklist dated Oct 2003 and EN Worksheet dated 04/09/01 attached hereto.

- (1) PDT members will develop a checklist of items to be checked and/or reviewed as a part of the process. For example, PD oversees environmental issues/permits and need to address WQC,CZC and NPDES requirements for this work. For RE checklist should include pipeline easements, local sponsors requirements, upland disposal areas, etc.
- (2) PDT will review Lessons Learned from other dredging work.

Spec Engineer, EN-DW combines Tech Specs and Contract Clauses, along with contract drawings (front end), creating the total solicitation package

3.4 DREDGING PLANS AND SPECS

DELIVERABLES:

Draft Technical specs contain:

Bid Schedule in Standard Format. Standard Format attached here-in.

1000's Additional Special Contract Requirements (job specific)

1410's Environmental Protection from PD to: OP-TN on maintenance; EN designer on New Work

2500's Dredging Technical Specifications (not included in rental contracts)

Appendix A – Dredge quantity breakdown;

Half Size Plotted Drawings

RTA report – lists specs and drawings in job (sample attached)

Contract clauses from CT (Based on worksheets delivered by PM)

PROCESS:

Maintenance projects: Plans/Specs initially drafted by OP-GE/GW and submitted to OP-TN

OP-TN reviews and either sends back to OP-GE/GW for revision OR forwards to PAE

PAE forwards to EN-DW, who reproduces the P&S for distribution – this is 100% Unreviewed product.

New Work projects: Plans/Specs initially drafted by EN designer and forwarded to PAE, PAE forwards to EN-DW, who reproduces the P&S for distribution – this is 100% unreviewed product.

3.5 BCOE/ITR

Background: BCOE is defined as OP/CD review; ITR is another designer reviewing the design

Therefore on maintenance dredging jobs, OP (field) writes the technical specification and OP-TN reviews along with EN, the BCOE/ITR are conducted simultaneously. On New Work projects, EN designs and the BCOE is performed by the PDT, a separate ITR will be performed by an independent team.

PAE distributes 100% Unreviewed package to PDT

All PDT comments shall be annotated.

All review comments are forwarded to the PM.

PM distributes Tech Spec comments to appropriate designer for revision (OP,PD or EN).

PAE distributes contract clauses comments to the CT specialist for evaluation/revision, if appropriate.

Disagreement between designer and comment author must be discussed and resolved or elevated to the PM/PDT for resolution.

When changes resolved and incorporated, the package is Ready To Advertise (RTA)

3.6 ADVERTISEMENT

Final RTA drawing files and specifications delivered to the PAE. Included will be an RTA report with final versions of all Deliverables listed above. PAE transmits the package to EN-DW Specification Engineer for preparation of solicitation package and advertisement.

Job can be advertised after items 1-11 completed on the CT checklist.

Hard copies are printed and distributed internally. CT maintains the distribution list.

Dredging jobs are to have State WQC and CZC prior to advertisement. Exceptions are approved by PM, PD, OC and CT.

3.7 BCOE PACKAGE INCLUDES:

(1) BCOE Certification Letter

Background: BCOE Certification letter example is located in ER 415-1-11 Appendix A . A sample BCOE Certification Letter for New Work and Maintenance Dredging is included here-in. BCOE Certification letter shall be delivered to CT NLT 10 days prior to bid opening. If CT does not received the BCOE Letter within 5 days of Bid Opening then the solicitation will be postponed indefinitely.

(2) Annotated review comments

(3) Lessons Learned certificate from the designers

Lessons learned database is shared by EN and CD. In the future this database will be replaced by DrChecks. EN/CD database has focused on Military Construction. OP and PD will be added for dredging and O&M issues.

PROCESS: PAE obtains annotated comments and Lessons Learned Certificate, then initiates BCOE letter.

ENVIRONMENTAL (PD) SIGNATURE WILL REQUIRE MODIFICATION OF BCOE FORM – Recommend form be revised to have PD as 2nd signature.

1st signature certifies that all BCOE comments have been addressed and that lessons learned have been reviewed – signed by office responsible for design, EN-H for new work projects and OP-TN for maintenance projects

2nd signature – PD signs the BCOE that the environmental conditions (i.e. certifications) are addressed in the P&S.

3rd signature is from the office administering the contract – OP-G signs (suggest OP-GE/GW sign in future) that their comments have been incorporated; generally Chief of OP-G.

PAE certifies Lessons Learned have been reviewed and incorporated for New Work projects, OP-TN, or OP-G representative certifies that Lessons Learned have been reviewed and incorporated for Maintenance projects.

New Lessons Learned shall be submitted to that organizations Lessons Learned POC

ITR Certification – done concurrently with BCOE. Guidance and sample ITR certificate identified in ER 1110-2-1150 Enclosure 1 to Appendix F. Signed certificate stored in PAE's project file.

3.8 AMENDMENTS:

Spec identifies POC for questions

Causes for amendment:

In-house: Issues from PDT

External: Request For Information (RFI) from Contractor

RFI routed to EN-DW Spec Engineer

Spec Engineer routes to PAE

PAE send to appropriate PDT member for resolution and reply w/copy to PM

Reply sent thru PAE to Spec Engineer

Spec Engineer forwards reply to Contractor

If RFI generates an amendment:

Appropriate Spec and/or Drawing is revised and returned to PAE for transmittal to Spec Engineer. Any drawing that requires revision must be obtained from EN-DW. Revision to the drawings shall be delivered to the spec engineer for amendment preparation.

Spec Engineer issues the amendment

If amendment requires bid opening to be rescheduled, an Approval of Amendment form must be completed. Form is completed, signed and delivered to Spec Engineer.

3.9 AMENDMENT AND REVISED BCOE

PM/PDT determines if amendment is a major change. A new BCOE may be required. Determination made along the lines of CT definition – an amendment that affects price or time necessitates postponing bid opening, considered a Major Change.

Amendment not affecting price or time are considered administrative amendments and considered a Minor Change. No new BCOE.

3.10 QUALITY CONTROL PLAN (QCP): Quality is assured by:

Review of Lessons Learned database at the outset of the job

Design Quality Control Plan addresses the PDT, ITR team, synopsis of project, milestones/schedule

Adherence to BCOE review and certification

Adherence to ITR review and certification

Use the EN Solicitation Worksheet and CT Project Solicitation Checklist

Use of organization checklists – PD, RE, etc

Submittal of Lessons Learned at the completion of the design and construction phases

QC/QA during construction phase

STANDARD OPERATING PROCEDURES (SOP)
For
CONSTRUCTION SOLICITATIONS

1. Purpose: The checklists and processes referenced herein are designed to assist Project Managers, EN personnel and CT personnel, by ensuring that all team-members have taken the necessary acquisition cycle steps, toward the timely and accurate processing of project solicitations in support of the Mobile District.

STEPS 2 – 10 BELOW MUST ALL OCCUR ON THE SAME DAY!

2. The Project Manager will deliver a completed (items 1-8) Project Solicitation Checklist (see attached), with supporting documents including an un-funded CEFMS Planning PR&C number, and the EN Solicitation Worksheet to CT-C (Sue Speights or Leo Hickman in Sue's absence). The supporting documents should be stapled in numbered order to the checklist as applicable. As a matter of general information including the 100% un-reviewed process as outlined below, the PM should plan on approximately **130 calendar days** for IFB procurements, between the time the initial completed checklist is delivered to CT-C, and the desired award date. For RFP design/build procurements using Best Value evaluation techniques, approximately **200 calendar days** should be allotted.
3. CT-C (Sue Speights) will functionally assign the project to a GS-11 Contract Specialist who will perform pertinent "front-end" (section(s) 100, 600, 700, 800) solicitation responsibilities.
4. Sue Speights will deliver the checklist and related documents to Contractor Sonya White, or one of the following CT-C procurement technicians {PT} Mabel Baker, Karen Johnson, Cassandra Williams, Mary Browder, Rosemary Hall. The PT will then enter the PR&C (# with no dashes), including a brief project description with location, into the Standard Procurement System (SPS) database.
5. The PT will then **immediately** obtain a solicitation number (i.e. DACA01-00-R-0100) from SPS, ensuring the description data field includes the PR&C number with no dashes, and the project description.
6. The PT will then immediately "workload assign" the PR&C in SPS to the assigned GS-11 Contract Specialist, and also route the solicitation in SPS to the Contract Specialist.
7. As soon as possible thereafter, but **not more than two working hours** after obtaining the solicitation number from SPS, the PT will then forward a project notification e-mail. The E-mail should contain the solicitation number, title of the project, and the name of the assigned contract specialist, to the following addressees: Plans-Room, George Poiroux, Sharron Hudson, Allen Harrison, Al Denmark, David Green, Karen Williams, Shirley Hooker, Wanda Gerhardt, Sue Speights and Leo Hickman.

The following individuals will be courtesy copied the same e-mail: Project Manager, and the assigned Contract Specialist and the Contracting Officer.

8. To ensure maintenance of the approved project schedule, if EN-DW does not receive the notification e-mail from CT-C with the aforementioned notification details **within eight working hours** of receipt of the checklists and worksheets, then EN-DW will send a reminder e-mail to CT-C alerting them of the delay. (Please see the worksheet due date as published in the Military/Civil Design Schedule). CT-C will coordinate the tardiness issue with the Project Manager for resolution. The Contract Specialist with the Specifications Engineer and the Project Architect/Engineer will coordinate any schedule slippage, and advise the Contracting Officer accordingly.
9. EN-DW will send a reply “with history” email to the same individuals above stating who the EN-DW Specification Engineer is and specifying the need date, (**allowing at least 7 working days**) for the 100% unreviewed front-end document.
10. On that **same day**, the PT shall be responsible for delivering the original checklist package to Shirley/Wanda, which will be filed in the solicitation/contract folder. Next, the PT shall hand-carry a complete package to the assigned Contract Specialist (checklist In Box) and the EN-DW Spec Engineer. Upon receipt by the Contract Specialist of all related checklists, they are to visit with Sue/Leo to discuss the project schedule.
11. In pursuit of the 100% unreviewed document, the Contract Specialists will develop the front-end document in SPS and Microsoft Word format in **5 working days or less**. By close of business on the **fifth working day**, the Contract Specialists will print the front end for review by a teammate (Sue/Leo will assign if necessary), who will proof read, initial off, and communicate needed editorials by close of business on the **sixth working day**.
12. The Contract Specialists shall then incorporate any needed editorials into the front end document and finally email the completed front end to the EN-DW Specifications Engineer not later than close of business on the **7th working day**.
13. EN-DW shall be responsible for merging all pertinent data (i.e. drawings, specs, front-end), for purposes of preparing the 100% unreviewed submittal **within 5 working days**.
14. EN-DW shall then be responsible for coordination of reproduction of the 100% unreviewed project solicitation with IM-PS (Grafton Smith). This takes **5 working days**.
15. The actual review of the 100% final draft project solicitation occurs at this point (Customer, BCO, Legal, etc.). This review takes **21 calendar days** (normally).
16. Preferably during the 21 calendar day 100% review, but not later than a **minimum of five working days** before the issuance of the Advance Notice/CBD/WEB Page posting date, the Project Manager shall deliver the following item(s) to the EN-DW Specifications Engineer for the purposes of preparing the Advance Notice document; #9 Liquidated Damages form with supporting computational paper work; #10 Authority to Advertise Directive; and #11 Environmental clearances/NEPA documents.
17. Not later than **6 working days** before the scheduled Advance Notice/CBD/WEB Page posting date, as published in the Military/Civil Design schedule, the Specifications Engineer will e-mail the Project

Manager, Project Architect Engineer, Contracts Specialist, Sue Speights and Leo Hickman, to alert the PM that item(s) 9, 10, and 11 are due.

18. Project Managers missing item #9 Liquidated Damages, who require a temporary exception due to extenuating circumstances, may have the Project Advance Notice issued, if the Deputy for Project Management (DP) forwards an exception e-mail to CT- Ed Slana. In this event, the Project Manager will print the e-mail and deliver a hard paper copy to the EN-DW Specifications Engineer. Please note that the solicitation issuance will still be delayed for lack of Liquidated Damages information in the solicitation.
19. Under no circumstances is the PM to approach EN-DW about preparing an Advance Notice if item(s) #10 Directive, and #11 Environmental, or the Deputy's e-mail authorizing an exception to item #9 Liquidated Damages have not been delivered in total to EN-DW. The risk here is any Advance Notice activities will require a redo to correct dates. As a matter of law, the Advance Notice in conjunction with the Commerce Business Daily (CBD) synopsis may not be issued, until the Mobile District is in full possession of these critical documents. Please note that the project schedule will be impacted due to these delays. Inquiries on this issue are to be referred to OC and CT only.
20. Upon complete receipt by EN-DW of items 9, 10, and 11 but not later than **4 days** before the scheduled Advance Notice due date, EN-DW shall prepare the Advance Notice document (including reproduction request forms). An electronic version (WORD.doc) shall be simultaneously e-mailed by EN-DW to the Plans-Room, Sonya White, the Contract Specialist, Sue Speights, Leo Hickman and the Contracting Officer. EN-DW shall then hand carry the hard copy of the Advance Notice and supporting documentation, including 9, 10, and 11 to Sue Speights/Leo Hickman. Any date changes to the WORD.doc, as a result of delays by CT-C to expeditiously issue the CBD, shall be the responsibility of the CT-C Contracts Specialist. However, CT-C shall first coordinate with the Specifications Engineer before making any changes to the Advance Notice WORD.doc. The final edited version must then be e-mailed to the Specifications Engineer for final archiving.
21. From the approved and final Advance Notice WORD.doc file, on the **same day** it is delivered, the Procurement Technician will post a CBD to the Department of Commerce's Web page. The PT will in turn e-mail the same file to the Plans Room for immediate posting to the Contracting Division Web page, and to the Specifications Engineer as notification that the Advance Notice may be released for distribution. The Procurement Technician will simultaneously hand-carry a copy of the CBD documents to Wanda/Shirley/Contract Specialist/Contracting Officer, and the Specifications Engineer, once the CBD has been posted to the Internet.
22. Approximately **21 Calendar days** after the simultaneous issuance and posting of the Advance Notice, CBD, and web page, the solicitation (i.e. CD-ROM) shall be issued to all prospective bidders. Public law mandates that bid opening shall not be sooner than **45 calendar days** after the CBD posting date.
23. Facsimile amendments may be issued to extend bid-opening dates to ensure the **30 calendar day** advertising stipulations are met.

24. The Project Manager shall be responsible for the delivery of check list item(s) #12 Authority to Open Bids Directive, item #13 Lesson Learned certification, item #14 BCOE certification, item #15 Real Estate Clearances, item #16 Funds Availability Memo, and item #17 Environmental Permits to CT-C Wanda Gerhardt or Shirley Hooker, NLT **10 working days** prior to bid opening. The PM may coordinate with EN-DW James Potter, for direct delivery of item(s) #13 and #14 to CT-C

25. **Eleven days** before the bid opening, the Contract Specialists shall send a courtesy reminder e-mail wake up to the Project Manager, PM-M, PM-I, or PM-C, respectively, the Contracting Officer, Contract Specialists, Specifications Engineer, Sue Speights and Leo Hickman, identifying any missing items. On the **5th working day** prior to bid opening, any solicitation missing any of item(s) 12 – 17, will be automatically postponed indefinitely.

APPROVAL OF AMENDMENT

TO: EN-DW

DATE:

SUBJECT: APPROVAL OF AMENDMENT NO.

1. PROJECT:

2. CADD NO:

3. LOCATION:

4. PM:

5. PAE:

6. BID OPENING DATE WILL CHANGE VIA THIS AMENDMENT YES NO

7. REVISED BID OPENING DATE HAS BEEN ESTABLISHED BY EN-DW YES NO NA

8. REVISED BID OPENING DATE IS NA

9. REVISED BID OPENING DATE HAS BEEN APPROVED BY CUSTOMER YES NO NA

10. THERE ARE DRAWING CHANGES INCLUDED WITH THIS AMENDMENT YES NO

PM SIGNATURE _____ or

PAE SIGNATURE _____

**PROJECT SOLICITATION CHECKLIST
REQUIRED FOR 100% UN-REVIEWED FINAL SUBMITTAL,
ADVANCE NOTICE AND ADVERTISEMENT**

PROJECT TITLE: _____

Project Mgr.: _____ **Ext.:** _____

NOTE: Has Project been considered for MATOC awards?	YES	NA
1. Contractual PR&C (Un-funded) for Solicitation/Contract Award PR&C (14 Nos.) _____		
2. Signed (SBA, KO & DB) DD Form 2579 (8a/SB/SDB/Unrestricted) Include copy of <u>Acceptance letter</u> on single source & competitive 8a's!	YES	NA
3. J&A <u>and</u> SOURCES SOUGHT CBD SYNOPSIS (If Plans/Specs include a Manufacturer's "Brand Name")	YES	NA
4. JUSTIFICATION FOR OPTIONAL ITEMS Option acceptance period: 30, 60, 90, 120 days	YES	NA
5. AUTH. TO HOLD PRE-BID/PRE-PROPOSAL CONFERENCE (Required on all single source 8a's)! (If YES, Please NOTE Date/Time/Place of Conference and include applicable clause in Section 00100 of the Specifications.) _____	YES	NA

6. WAGE RATES	YES	NA
7. STATUTORY LIMITS (clause in specs?, line item specific??)	YES	NA
8. SOURCE SELECTION PLAN (RFP Only)	YES	NA

100% UN-REVIEWED SUBMITTAL CUTOFF (Items 1 thru 8 To: CT-C) (3 weeks prior to Mail-out)

9. LIQUIDATED DAMAGES	YES	NA
10. DIRECTIVE (Auth. to Advertise)	YES	<u>and</u> (Auth. to Open)
11. ENVIRONMENTAL CLEARANCES (NEPA Only)	YES	NA

CBD/ADVANCE NOTICE /ADVERTISE CUTOFF! (Items 1 thru 11 To:EN-DW) (1 week prior to Adv. Notice)

12. DIRECTIVE (Auth. to Open)	YES	NA, IF #12 INCLUDED!
13. LESSON LEARNED CERTIFICATION	YES	NA
14. BCOE CERTIFICATION OR D&F OF KNOWN CHANGES	YES	NA
15. REAL ESTATE CLEARANCES	YES	NA
16. FUNDS AVAILABILITY MEMO (if Additive Alternates included)	YES	NA
17. ENVIRONMENTAL PERMITS	YES	NA

NOTE: ITEMS 1 THRU 17 MUST BE PROVIDED TO CT 5 DAYS PRIOR TO BID OPENING OR PROJECT WILL BE POSTPONED INDEFINITELY!!!

CT-C TO COMPLETE:
SOLICITATION No.: _____

Bid Opening Date: _____

P.O.C.: _____ Ext.: _____

EN SOLICITATION WORKSHEET

REQUIRED FOR 100% UN-REVIEWED FINAL SUBMITTAL AND THE RTA

Official Project Title: _____

Project Location: _____ **County:** _____

CADD Number: _____

Labor Code: _____

PR&C (Reproduction): _____

PR&C (CD ROM): _____

PR&C (FED EX Mailing): _____

Approximate Construction Time: _____

Approximate Cost Range: _____

- Less than 25,000
- 25,000 – 100,000
- 100,000 – 250,000
- 250,000 – 500,000
- 500,000 – 1,000,000
- 1,000,000 – 5,000,000
- 5,000,000 – 10,000,000
- 10,000,000 – 25,000,000
- Over 25,000,000

A/E Firm: _____

Address: _____

Phone no: _____

Fax no: _____

To be Advertised: IFB RFP

To be Advertised: Unrestricted
Small Business
Small Disadvantaged Business
8a Competitive
8a Sole Source
MATOC
Design Build
Metric or English

Pre-bid Conference:

Location _____

Date: _____

Time: _____

Airfield Clearances Required:

Yes No

Government Furnished Property:

None
Under \$100,000
Over \$100,000

Asbestos Removal: Yes No

Additive Alternates: Yes No

**Bid Options (30, 60, 90, 120 days)
option acceptance)** Yes No

CPM Required: Yes No

Construction Phasing: Yes No
(attach requirements)

NAICS code (see 2579) _____

Description of Work:

Project Manager: _____ **Phone Number:** _____ **Date:** _____

PAE: _____ **Phone Number:** _____

Job Name
Location

Solicitation No.
CADD No.

BIDDER'S NAME: _____

BIDDING SCHEDULE

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>Base Bid</u>					
1.	Building, Complete	1	Job	XXX	_____
2.	Site Work	1	Job	XXX	_____
3.	Rock Excavation	105	CY	_____	_____
Total Base Bid					_____
<u>Bid Option No. 1</u>					
4.	Parking Lot	1	Job	XXX	_____
<u>Bid Option No. 2</u>					
5.	Landscaping	1	Job	XXX	_____
Total Base Bid Plus Options 1 & 2					_____

OFFEROR ELECTS TO WAIVE THE PRICE EVALUATION PREFERENCE
FOR HUBZONE SMALL BUSINESS CONCERNS: ()NO ()YES

(SEE BID SCHEDULE NOTE NO. _____.)

NOTES FOR BIDDING SCHEDULE

[USE WITH IFB'S]

NOTE NO. 1. To better facilitate the public bid opening process, all modifications to bids are to be submitted on copies of the latest bid schedules as published in the solicitation or the latest amendment thereto. In lieu of indicating additions/deductions to bid items, all bidders should state their revised prices for each item. The company name should be indicated on the face of the bidding schedule to preclude being misplaced.

[USE WITH RFP'S]

NOTE NO. 1. To better facilitate the receipt and proposal process, all modifications to proposals are to be submitted on copies of the latest bid schedules as published in the solicitation or the latest amendment thereto. In lieu of indicating additions/deductions to bid items, all bidders should state their revised prices for each item. The company name should be indicated on the face of the bidding schedule to preclude being misplaced.

NOTE NO. 2. Bidders must insert a price on all numbered items of the Bidding Schedule. Failure to do so will disqualify the bid.

NOTE NO. 3. If a modification to a bid is submitted and provides for a lump-sum adjustment to the total estimated cost, the application of the lump-sum adjustment to each unit price and/or lump-sum price, in the bid schedule must be stated or, if it is not stated, the bidder agrees that the lump-sum adjustment shall be applied on a prorata basis to every bid item in the bid schedule.

[USE WITH IFB'S]

NOTE NO. 4. CONDITIONS GOVERNING EVALUATION OF BIDS AND AWARD OF CONTRACTS.

One contract only will be awarded on this Bid Schedule and award will be made to the low bidder on the Base Bid and all Options, in accordance with the paragraph entitled "Evaluation Of Options (JUL 1990)" in the Instructions to Bidders.

The Government may require the delivery of the numbered line items, identified in the schedule as option items, in the quantity and at the price stated in the schedule. Subject to the availability of funds, the Contracting Officer may exercise the option by written notice to the Contractor within 90 days of Notice to Proceed.

[USE WITH RFP'S]

NOTE NO. 4. CONDITIONS GOVERNING EVALUATION OF BIDS AND AWARD OF CONTRACTS:

One contract only will be awarded on this Bid Schedule and award will be made on the Base Bid and selected Options, in accordance with the paragraph entitled Evaluation of Options (JUL 1990) in Section 00100: INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS. Award will be made according to the "Best Value" approach as defined in Section 00110: PROPOSAL SUBMISSION REQUIREMENTS AND INSTRUCTIONS, BEST VALUE - DESIGN-BUILD.

The Government may require the delivery of the numbered line items, identified in the schedule as option items, in the quantity and at the price stated in the schedule. Subject to the availability of funds, the Contracting Officer may exercise the option by written notice to the Contractor within 120 days of Notice to Proceed.

[USE WITH RFP'S]

NOTE NO. XX. LIMITATION OF GOVERNMENT'S OBLIGATION.

Refer to Section 00800 clause entitled COST LIMITATION TARGETS for the specified limitation of the Government's obligation on the Base Bid plus the Options.

NOTE NO. 5. All the extensions of the unit prices shown will be subject to verification by the Government. In case of variation between the unit price and the extension, the unit price will be considered to be the bid.

NOTE NO. XX. Reference clause 52.219-4 entitled "Notice of Price Evaluation Preference for Hubzone Small Business Concerns (Jan 1999)", see Section 00700.

NOTE NO. XX. This procurement is not restricted to Hubzone Small Business Concerns. However, offerors certifying as a Hubzone Small Business Concern must be certified by the SBA on or prior to date set for receipt of offers.

END OF BID SCHEDULE

RTA REPORT FOR FINAL SUBMITTAL

LIST OF DRAWINGS AND SPECIFICATIONS

SUBMITTED TO DIRECTORY <ftp://ftp.sam.usace.army.mil/pub/IRVINGTON/CH03M819/> (drawings only)

From: Greg Miller/x3115/EN-HH
Date: 30 Jun 03

To: EN-DW - AL DENMARK/ED McLAURIN - Ex. 4188/2646 - Rm. 4023/4021

Project Title: Maintenance Dredging, Pascagoula & Bayou Casotte Channels, MS (CH03M819)

This Project is designed in METRIC ENGLISH UNITS

The Spec-In-Tac Reports have been run and clean-up accomplished for each section of Specs
~~YES~~—NO NA

SPEC FILE NAME
and/or SPEC NUMBER

TITLE OF SPEC

Bidsched2003.doc	Bidding Schedule
PascSec1000.doc	Additional Special Contract Requirements (SEC 01000)
PascSec1410.doc	Environmental Protection (SEC 01410)
PascSec2500.doc	Maintenance Dredging (SEC 02500)
Pascagoula2003AppendixA.xls	Appendix A

<u>CADD FILE NAME</u>	<u>FILE NUMBER</u>	<u>SHT REF</u>	<u>TITLE OF DRAWING</u>
X1.DGN	A-14-2-460	X-1	INDEX OF DRAWINGS AND COVER SHEET
Y1.DGN	A-14-2-461	Y-1	CHANNEL DREDGING, DISPOSAL AREAS & LOCALITY MAP
Y2.DGN	A-14-2-462	Y-2	CHANNEL DREDGING & DISPOSAL AREAS
Y3.DGN	A-14-2-463	Y-3	CHANNEL DREDGING & DISPOSAL AREAS
Y4.DGN	A-14-2-464	Y-4	TRIPLE BARREL DISPOSAL AREA
Y5.DGN	A-14-2-465	Y-5	DISPOSAL AREA 3 & 4
Y6.DGN	A-14-2-466	Y-6	DISPOSAL AREA 6
Y7.DGN	A-14-2-467	Y-7	DISPOSAL AREA 7
Y8.DGN	A-14-2-468	Y-8	DISPOSAL AREA 10
Y9.DGN	A-14-2-469	Y-9	CHANNEL SECTIONS STA. 0+00- 2+00 TAN-1
Y10.DGN	A-14-2-470	Y-10	CHANNEL SECTIONS STA. 3+00- 7+00 TAN-1
Y11.DGN	A-14-2-471	Y-11	CHANNEL SECTIONS STA. 8+00-13+00 TAN-1
Y12.DGN	A-14-2-472	Y-12	CHANNEL SECTIONS STA. 14+00-20+00 TAN-1
Y13.DGN	A-14-2-473	Y-13	CHANNEL SECTIONS STA. 0+00- 9+00 TAN-2
Y14.DGN	A-14-2-474	Y-14	CHANNEL SECTIONS STA. 10+00-21+00 TAN-2
Y15.DGN	A-14-2-475	Y-15	CHANNEL SECTIONS STA. 22+00-23+79 TAN-2 &
Y16.DGN	A-14-2-476	Y-16	CHANNEL SECTIONS STA. 10+00-17+48 TAN-3
Y17.DGN	A-14-2-477	Y-17	CHANNEL SECTIONS STA. 0+00- 8+00 TAN-4
Y18.DGN	A-14-2-478	Y-18	CHANNEL SECTIONS STA. 9+00-19+00 TAN-4
Y19.DGN	A-14-2-479	Y-19	CHANNEL SECTIONS STA. 20+00-26+00 TAN-4
Y20.DGN	A-14-2-480	Y-20	CHANNEL SECTIONS STA. 27+00-29+43 TAN-4
Y21.DGN	A-14-2-481	Y-21	CHANNEL SECTIONS STA. 0+00- 5+00 TAN-5
Y22.DGN	A-14-2-482	Y-22	CHANNEL SECTIONS STA. 6+00-11+00 TAN-5

Y23.DGN	A-14-2-483	Y-23	CHANNEL SECTIONS STA. 12+00-14+60 TAN-5
Y24.DGN	A-14-2-484	Y-24	CHANNEL SECTIONS STA. 90+00 - 100+00
Y25.DGN	A-14-2-485	Y-25	CHANNEL SECTIONS STA. 102+00 - 112+00
Y26.DGN	A-14-2-486	Y-26	CHANNEL SECTIONS STA. 114+00 - 124+00
Y27.DGN	A-14-2-487	Y-27	CHANNEL SECTIONS STA. 126+00 - 136+00
Y28.DGN	A-14-2-488	Y-28	CHANNEL SECTIONS STA. 138+00 - 148+00
Y29.DGN	A-14-2-489	Y-29	CHANNEL SECTIONS STA. 158+00 - 168+00
Y30.DGN	A-14-2-490	Y-30	CHANNEL SECTIONA STA. 162+00 - 168+00
Y31.DGN	A-14-2-491	Y-31	CHANNEL SECTIONS STA. 170+00 - 178+00
Y32.DGN	A-14-2-492	Y-32	CHANNEL SECTIONS STA. 180+00 - 189+00
Y33.DGN	A-14-2-493	Y-33	CHANNEL SECTIONS STA. 191+00 - 201+00
Y34.DGN	A-14-2-494	Y-34	CHANNEL SECTIONS STA. 203+00 - 213+00
Y35.DGN	A-14-2-495	Y-35	CHANNEL SECTIONS STA. 215+00 - 225+00
Y36.DGN	A-14-2-496	Y-36	CHANNEL SECTIONS STA. 227+00 - 237+00
Y37.DGN	A-14-2-497	Y-37	CHANNEL SECTIONS STA. 239+00 - 244+26.37
Y38.DGN	A-14-2-498	Y-38	CHANNEL SECTIONS STA. 0+00 - 3+67.86
Y39.DGN	A-14-2-499	Y-39	CHANNEL SECTIONS STA. 7+08.07- 19+00
Y40.DGN	A-14-2-500	Y-40	CHANNEL SECTIONS STA. 21+00 - 31+00
Y41.DGN	A-14-2-501	Y-41	CHANNEL SECTIONS STA. 33+00 - 39+00
Y42.DGN	A-14-2-502	Y-42	CHANNEL SECTIONS STA. 257+00 - 261+00
Y43.DGN	A-14-2-503	Y-43	CHANNEL SECTIONS STA. 263+00 - 267+00
Y44.DGN	A-14-2-504	Y-44	CHANNEL SECTIONS STA. 269+00 - 273+00
Y45.DGN	A-14-2-505	Y-45	CHANNEL SECTIONS STA. 275+00 - 279+00
Y46.DGN	A-14-2-506	Y-46	CHANNEL SECTIONS STA. 281+00 - 285+00
Y47.DGN	A-14-2-507	Y-47	CHANNEL SECTIONS STA. 287+00 - 293+00
Y48.DGN	A-14-2-508	Y-48	CHANNEL SECTIONS STA. 295+43.47 - 299+00

MEMORANDUM THRU PD-EC
OP-GW

FOR CT-C

Attention: M. Browder
S. Hooker

SUBJECT: BCOE Certification

1. PROJECT TITLE: Maintenance Dredging of Pascagoula/Bayou Cassote Channels
SPECIFICATION NUMBER: DACW01-03-B-0008
INSTALLATION: Pascagoula/Bayou Cassote, MS

2. I certify that all appropriate biddability, contractibility, operability and environmental comments received and reviewed by this office by ----- have been incorporated into the bid package. Feedback has been provided to reviewers for all comments.

3. In accordance with the responsibilities stated in ER 415-1-11, 1 Sep 94, contracting Division is authorized to proceed with the opening of bids on this project without a separate determination and finding.

4. This original certification will be filed in the official project/contract records. Copy of the original certification will be furnished to the Project Manager, Project Architect-Engineer and EN-DW.

DATE

KENNETH P. BRADLEY
Chief, OP-TN

DATE

DATE

SUSAN I. REES, PhD
Team Leader, PD-EC

DATE

DATE

MITCHELL F. MCDERMENT
Site Manager, OP-GW

CESAM-EN-H

DATE: 21 May 2003

MEMORANDUM THRU: PD-EC
OP-G

FOR CT-C

Attention: M. Browder
S. Hooker

SUBJECT: BCOE Certification

1. PROJECT TITLE: GENEVA LEVEE MAJOR REHABILITATION
SPECIFICATION NUMBER: DACW01-02-R-0054
INSTALLATION: GENEVA, AL

2. I certify that all appropriate biddability, contractibility, operability and environmental comments received and reviewed by this office by --- have been incorporated into the bid package. Feedback has been provided to reviewers for all comments.

3. In accordance with the responsibilities stated in ER 415-1-11, 1 Sep 94, contracting Division is authorized to proceed with the opening of bids on this project without a separate determination and finding.

4. This original certification will be filed in the official project/contract records. Copy of the original certification will be furnished to the Project Manager, Project Architect/Engineer and EN-DW.

DATE

DOUGLAS C OTTO, P.E.
Branch Chief, EN-H EN Div.

DATE

SUSAN I. REES, PhD
Team Leader, PD-EC

DATE

MITCHELL F. MCDERMENT
Site Manager, OP-GW

HYDROGRAPHIC SURVEYING GUIDE

1. Purpose

The following guide defines what surveys are required for dredging contracts and how they will be accomplished.

2. Applicable Regulations and Guidance

ER 1130-2-520 Navigation and Dredging Operations and Maintenance Policies

EP 1130-2-520 Navigation and Dredging Operations and Maintenance Guidance and Procedures

EM 1110-2-1003 Hydrographic Surveying

3. Background and Discussion

Hydrographic surveying in support of the development of dredging projects, both new work, new work combined with maintenance, and maintenance only, requires the involvement of both Operations and Engineering Divisions to fully implement the survey into a biddable product. This document will outline key areas of concern to ensure efficient and accurate project information is included in contract documents and environmental certifications. This document will outline the following:

- Who will perform surveys
- What surveys will be performed
- When surveys will be performed
- Establishment of spacing of survey ranges, type of surveys, etc. and any other special conditions/areas needed
- how the data will be handled
- how surveys will be performed

4. Alternative Processes

HGS software has been the standard survey collection/processing software used in the past for dredging projects that included maintenance dredging, however, Hypack is now the preferred survey package and all Mobile District Operations Division site offices are converting to Hypack software. Many dredging contractors use Hypack software, and this conversion will provide for greater consistency and ability to resolve disputes.

5. Recommended Process

Operations Division's field offices will have the responsibility for acquiring hydrographic surveys for the development of plans and specifications for combination new work and maintenance, and solely maintenance dredging contracts. Surveys for solely new work contracts may be acquired by OP field offices or through contracts issued by Engineering Division. Surveys for projects which include maintenance dredging may be performed by in-house survey crews or may be contracted to an Operations Division survey contractor at the discretion of the Site Manager depending on work load and party availability. If these surveys cannot be obtained to meet project schedules, then Operations Division may request Engineering Division to contract for the needed services. Hypack software (with limited exceptions) will be the standard software used for data collection. For projects that include new work and for which Operations Division obtains surveys, Operations

Division will provide the processed, edited xyz data to Engineering Division for channel layout, design and quantity computations. For projects that include new work, EN will prepare all drawings in support of the contracting effort, including those for inclusion with the environmental documentation. For maintenance jobs, OP will process the surveys, compute the quantities and prepare the appropriate dredging plans and specifications and other necessary drawings.

Typically 4 surveys will be performed for a dredging contract: (1) the initial survey used for development of plans and specifications, (2) a pre-bid survey used for verification of quantities to ensure the quantities have not substantially changed during the time interval between the initial survey and the bid date. This survey will be performed as near as possible to the bid date, leaving sufficient time for survey data processing, preparation and issuance of an amendment, and allowing 10 days for the bidders to incorporate changes made by the amendment into their bid package, (3) a Before Dredging Survey and (4) an After Dredging Survey. Format of raw survey data will be specified by the Project Delivery Team for each project as appropriate for that project. Recommended procedures for locations of section lines at bends and widening in the channel are included in Appendix 1 of the Quantities and Drawings section.

6. Process Checklist

The following items should be discussed at the project kick-off meeting prior to the initial survey.

Line spacing to include unique channel features.

Sounding Data Density

Software type (if other than Hypack)

Who will perform the survey

Who is the custodian of the survey data , OP or EN

Establishment of chain of custody for survey data

Are Acoustic Impedance Surveys required?

Marine or upland surveys required for D/A's or borrow areas

Limits of beach to be nourished if applicable

DREDGING QUANTITIES AND DRAWINGS PREPARATION GUIDE

1. Purpose

The following guide defines the process for computation of dredging quantities for both new work and maintenance projects, including those that involve both such as deepening and/or widening, and also provides information on the development of contract and other drawings related to dredging contract development for both new work and maintenance contracts.

2. Applicable Regulations and Guidance

ER 1130-2-520, Navigation and Dredging Operations and Maintenance Policy
EP 1130-2-520, Navigation and Dredging Operations and Maintenance Guidance and Procedures
EM 1110-2-1613, Hydraulic Design Guidance for Deep-Draft Navigation Projects
ER 1110-2-1150, Engineering and Design for Civil Works Projects
ER 1110-1-8159, DrChecks
ER 1110-1-8155, Specifications
ER 1110-1-12, Quality Management
ER 415-1-11, Biddability, Constructibility, Operability, and Environmental Review
EM 1110-2-1003, Hydrographic Surveying
Mobile District Design Manual, Oct 99 edition

3. Background and Discussion

Dredge quantities should be determined by a consistent method to ensure accurate and repeatable quantities are reflected in all contract formulation documents including environmental documents, real estate documents, advance maintenance requests, design computations for disposal area capacity and the dredging solicitation. The following process will establish and clarify various areas of quantity calculation that have been at issue in past contracts. It will also provide for consistent development of all drawings for use in dredging contracts. This guide will establish lines of authority for the creation and archiving of drawings.

4. Alternative Processes

Dredging quantities have historically been calculated using multiple methods particularly involving the starting and stopping locations of the dredge cut. This can result in large variations in quantities due to the different interpretation of dredging limits. Another area of confusion has been the templates used for advanced maintenance and allowable overdepth. In combination new work and maintenance jobs, some percentage of the work is considered maintenance and as such is therefore paid for with O&M funds, this guide will establish a method for determining this dividing line between CG and O&M funds. Historically, EN has prepared solicitation drawing for new work dredging contracts and OP has prepared the drawings for maintenance contracts. However, other drawings such as maps included in environmental permits have not had the same level of ownership, and this guide will establish responsibilities for all drawings related to dredging contracts.

5. Recommended Process

Dredging limits: The limits of dredging shown on contract drawing include areas of the channel where the bottom elevation is above the authorized project depth. (Bottom elevation is generally determined from the plot of the high frequency survey (208 kHz) unless PDT determines fluff or other soft bottom condition requires use of lower frequency survey.) Areas that are at or below the authorized depth will not be included in the contract, except as described herein. For new work contracts, any channel location containing material above project depth will be included in the quantity computations. The cross sectional area (used in the average end area method for volume calculation) at any station shall include the entire cross sectional area of both the advance maintenance and allowable overdepth templates (even though the area above the project depth may only occur in a portion of the cross section.). The cross sectional area may be terminated at the channel centerline if the actual shoal lies only on one side of the channel. Drawings showing channel limits will be cross hatched to show the area to be dredged for the full channel width (except for half channel width areas). Channel limits represented by contour lines will not be used.

End of Project: Where project authorization describes a project connecting to existing deep water, such as a specific bottom depth or contour line, the authorized project depth is the ending point for the excavation limits. The excavation limits shall not be extended into an area to include only advanced maintenance or allowable overdepth.

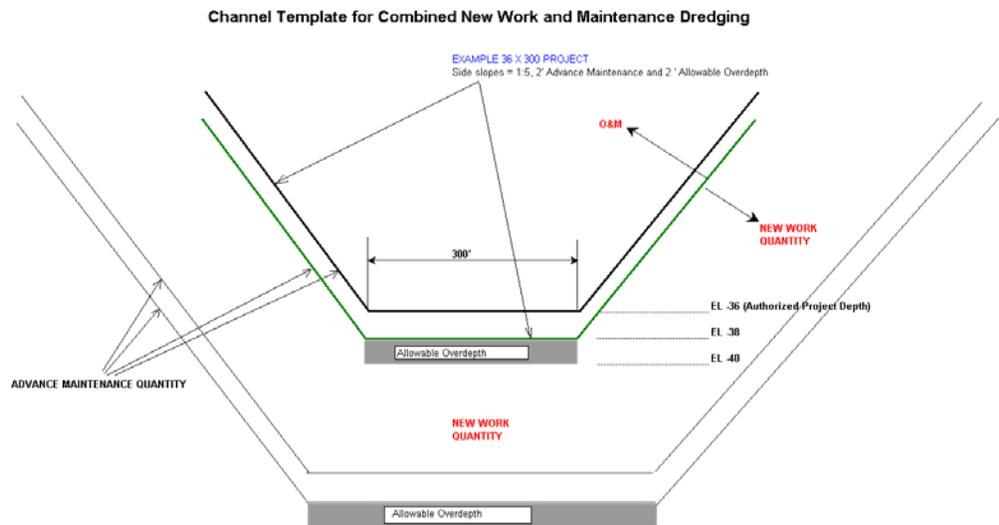
Allowable Overdepth: The Project Delivery Team (PDT) will determine the amount of allowable overdepth to be used, however, allowable overdepth exceeding 2 feet or specification of no allowable overdepth, will not be used without specific permission as described in ER 1130-2-520. No allowable overdepth will be used on side slopes.

Advance Maintenance: Requirement for advance maintenance must be approved at South Atlantic Division. OP-TN has requested and received approval for advanced maintenance on many projects. Records of approvals for specific locations are on file in OP-TN. Additional advance maintenance authority requests will be prepared by OP-TN as necessary.

Side slopes: EN will determine side slopes on new work contracts. Side slopes on maintenance contracts will be determined by past practices for that project. Any change in side slopes from past practices must be approved by EN. The designated side slope (1V:4H, 1V:5H, etc.) will be used perpendicular to the channel toe of slope. The side slope on a cross section made perpendicular to the baseline will have a slope milder than the designated side slope if the channel toe is askew to the baseline.

Quantities: Total quantities of dredging will be computed by the average end area method. The average end area method and other methods that may be used for computing quantities of types of soil and rock to be dredged for new work projects are described in Appendix 1. EN will compute quantities for all new work contracts from survey data provided by OP (see Survey Process Guide). This includes both the maintenance and new work quantity associated with the new work contract. OP will compute quantities for all maintenance contracts.

Separation between New work and Maintenance Quantities: On combination new work and maintenance jobs, the dividing line between new work and maintenance is established as the bottom of the advanced maintenance template of the original project. The PDT may change this line if evidence supports a different location. Evidence such as past dredging practices digging significantly deeper may be considered sufficient to lower the dividing line to past dredging depth. See attached template.



All material below the Advance Maintenance prism of the original project will be paid as New Work material.

Authorized project width occurs at the bottom of the Advance Maintenance Prism, and is the same as the width at the Authorized Project Depth.

Quantity tabulations: All solicitations will include a tabulation of the quantity computations as an appendix to the specifications.

Quality checks: On new work jobs, OP will check the quantity computed by EN. EN will review drawings developed by OP for maintenance contracts through the BCOE and ITR processes. EN will archive all drawings including those prepared for rental contracts and task orders.

Drawing preparation: EN will prepare all drawings for new work contracts to include original drawings for plan development, amendment drawings, contract modification drawings, environmental mapping and any other drawings needed to develop and execute a new work contract. OP will prepare all drawings for maintenance contracts.

Drawing numbers: For unit price maintenance dredging contracts, the PAE from EN will provide CADD Code and starting File No. for drawings to OP-TN representatives upon request (typically at job inception). Solicitation numbers are assigned by CT. The OP-TN representative will establish the proper name for maintenance projects to be used in all contract documents and provide that name to the PAE. OP-TN will forward the project name and numbers to OP (field office) for incorporation into the plans and specs. On new work projects, Project Manager will establish project name and provide to PAE. PAE will provide name and appropriate numbers to the EN designer.

Spacing of Cross Sections: Cross sections will be provided in the plans on the same spacing as used for quantity computation.

6. Process Checklist

Determine channel dredging limits

Determine survey frequency to define channel bottom

Determine appropriate allowable overdepth and advance maintenance

Determine appropriate channel side slopes

Quantities computed by EN for new work jobs, OP for maintenance jobs

Determine dividing line between new work and maintenance for payment purposes.

Include quantity table as appendix to specifications

OP checks quantity computations of new work jobs, EN checks OP prepared drawings through BCOE and ITR.

Obtain CADD Code and File No. for drawings from EN. CT assigns solicitation number. OP-TN establishes project name.

Ensure cross sections and quantities are on the same spacing.

QUANTITIES AND DRAWINGS GUIDE – APPENDIX 1

Earthwork Volume Calculation Methods:

Methods for estimating total volumes of earthwork include three general methods, each of which may have several permutations:

- a. Average end area method
- b. Borrow pit method
- c. Triangle method

Methods for estimating percentages and volumes of various types of soil and rock excavation components include the above methods and also the boring sample length method.

The average end area method generally should be used for computation of overall quantities of dredged materials. Either the average end area method or borrow pit method should be used for computation of quantities of different types of earth to be excavated if a high degree of accuracy is needed; however, the boring sample length method may be used when only rough estimates are needed. Estimates of rock excavation and common excavation are needed with the higher degree of accuracy when both soil and rock are encountered at depths above allowable overdepth.

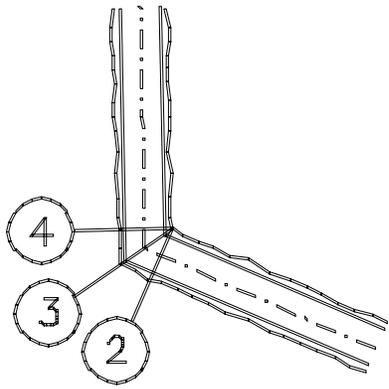
Average End Area Method. This method involves establishing a horizontal alignment (baseline or centerline) and stationing, obtaining survey data at sections approximately perpendicular to the horizontal alignment except possibly at bends in the alignment, computing cross-sectional areas at sections based on difference between two surveys or a survey and template, computing incremental volumes between each pair of adjacent sections, and summing the incremental volumes. The spacing between sections should generally be uniform except at bends or template transitions in the channel where the spacing should be adjusted (usually with smaller than typical spacing) so that sections are made where needed. At least 3 sections generally should be used. The typical spacing between sections may vary according to the desired accuracy of the survey and the uniformity of the ground surface. Typical spacing between sections for most projects varies from about 100 feet to 500 feet. Typical spacing of points along the section lines should be about 3 feet to 20 feet depending on the desired accuracy of the survey and the uniformity of the ground surface. Point spacing of less than about 3 feet are very likely to provide almost all redundant data and are not recommended.

The “standard” end-area equation for computing the incremental volume between a pair of contiguous sections that are parallel to each other and are located on the same baseline segment is

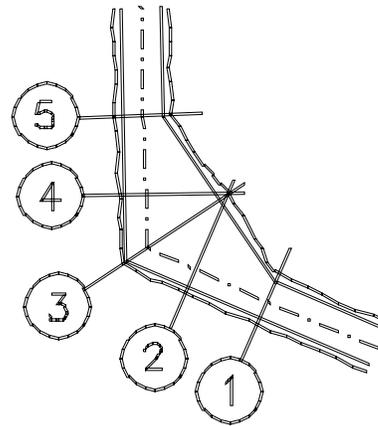
$$V=0.5 \times (A_1+A_2) \times (S_2-S_1) \quad \text{(Equation 1)}$$

where V is the incremental volume, A_1 and A_2 are the sectional areas at the two sections, and S_1 and S_2 are the stations at the two sections. The result obtained from Equation 1 and the following equations should be converted appropriately if inconsistent units are used. Therefore if units of feet and square feet are used for length and area respectively, divide the result in cubic feet by 27 to obtain cubic yards.

Equation 1 is not applicable at bends in the channel. The geometry of a channel bend in plan view typically looks like one of the following, depending on whether bend widening is used.



Typical Channel Bend
Without Bend Widening



Typical Channel Bend
With Bend Widening

Figures 1 and 2: Typical Channel Bend Geometry and Section Locations at Bends

At channel bend areas, the following guidelines are recommended:

- a) Do not use sections that overlap within the sectional area that is being computed. The computational method should exclude any overlapping data that may be included in survey.
- b) Use sections where the channel template changes significantly (sections 1, 3, and 5 in Figure 2 are examples).
- d) A section (section 3 in Figures 1 and 2) may be used along the bisector of the angle formed by the bend of the channel baseline. This section is hereinafter referred to as the “bisector section”. The bisector section line is not necessarily perpendicular to the channel template footprint (toe of slope) line on the inside of the bend. Sections (2 and 4 in Figures 1 and 2) should be located so as to intersect with the bisector section line several feet outside of the channel area.
- c) Except at a bisector section, sections should be used that are approximately perpendicular to the closest channel baseline segment. The sectional area of any sections that are not approximately perpendicular to the channel baseline should not be used with the standard end-area volume formula.
- e) At bends with large deflection angles and channel widening, sections generally should usually be taken at sections 1, 2, 3, 4, and 5 as shown plus intermediate sections if needed (see f below). For small deflection angles, narrow channels, or if the bend is not widened, one section (preferably at section 3) or two sections (at sections 2 and 4) may be adequate. The number of sections should be selected so that the distance between adjacent sections along the outside toe of slope line does not exceed the chosen spacing between sections.
- f) Approximately equally spaced intermediate sections should be used if the distances between the sections shown are larger than the chosen spacing between sections. Templates for sections in channel bend areas need to be adjusted for varying widths and varying side slopes where side slopes are askew to the channel baseline, but otherwise the average end area method can be used straight-forwardly with the standard end-area volume equation for all except the approximately quadrilateral region consisting of two right triangles, located between sections 2 and 4 and bisected by section 3 in the Figures 1 and 2.

If survey is made for sections 2, 3 and 4 and there are no intermediate surveys between sections 2 and 4 except section 3, the incremental volumes for the two approximately triangular regions can be estimated with

$$V = 0.5x(A_2+A_3x\cos(a/2))xL_{23} + 0.5x(A_4+A_3x\cos(a/2))xL_{34} \quad (\text{Equation 2})$$

where A_2 , A_3 and A_4 are the sectional areas at sections 2, 3 and 4 respectively, a is the deflection angle of the baseline, and L_{23} and L_{34} are average distances from centroids of sections 2 and 4 respectively to the centroid of the sectional area at section 3, measured parallel to the channel centerline at their respective locations. L_{23} and

L_{34} can be computed as

$$L_{23} = \tan(a/2) \times 0.5 \times (X_2 + X_3) \quad (\text{Equation 3})$$

$$L_{34} = \tan(a/2) \times 0.5 \times (X_3 + X_4) \quad (\text{Equation 4})$$

where a is the deflection angle of the baseline at the bend and X_2 and X_4 are offsets from the baseline to the centroids of sectional areas A_2 and A_4 . Section 3 can be drawn so the $\cos(a/2)$ factor is already figured into the computed area if the section points are projected to a line perpendicular to one of the baseline segments. In this case, Equation 2 can be expressed instead as

$$V = 0.5 \times (A_2 + A_3') \times L_{23} + 0.5 \times (A_4 + A_3') \times L_{34} \quad (\text{Equation 5})$$

where A_3' is the area at section 3 based on the projected section. This form of the equation may be considered to be the standard end-area equation (Equation 1) used twice (once for each triangle) with "adjusted" lengths between stations. The projected section method using Equation 5 generally is more convenient to use than the true section method with Equation 2 and is therefore recommended.

If survey is made for sections 2 and 4 and survey is not made for section 3 and there are no intermediate surveys between sections 2 and 4, the volume for the quadrilateral region can be estimated with

$$V = A_2 \times L_{23} + A_4 \times L_{34} \quad (\text{Equation 6})$$

If survey is made for section 3 and not made for section locations 2 and 4, the volume for the quadrilateral region can be estimated with

$$V = A_3 \times \cos(a/2) \times (L_{23} + L_{34}) \quad (\text{Equation 7})$$

or $V = A_3' \times (L_{23} + L_{34}) \quad (\text{Equation 8})$

Where there are intermediate surveys between section locations 2 and 3 and 3 and 4, the volume between sections 2 and 4 and the intermediate sections can be computed by the conventional average end-area formula. If intermediate sections are symmetrically placed about the channel baseline point of intersection (P.I.), the remaining area is a smaller quadrilateral region that can be computed as described above. Use of asymmetrically placed intermediate sections is not recommended.

Overall quantities are based only on hydrographic and/or topographic surveys and the excavation template; whereas quantities of soil and rock components are also based on subsurface strata data, usually as indicated by interpolation of subsurface investigation boring data. When the average end area method is used to compute component quantities, interpolated limits of the strata of interest (typically the soil and rock interface at top of rock) should be superimposed on the cross-sections and the same methods used to compute the component quantities. The recommended method of interpolation of the subsurface data generally is triangulation.

Accuracy of computations using the average end area method depends on:

- 1) Survey data at a section needs to be accurate and representative of the reach approximately halfway to the next section. The data should be checked for erroneous "spikes". If a significant anomaly in the section actually exists, additional cross-sections that are representative should be taken on both sides of the anomaly.
- 2) The sectional areas between adjacent sections need to vary approximately linearly with station or sections need to be closely enough spaced that non-linear variation of sectional area with station becomes small enough to be insignificant.
- 3) Computations of volumes at bends in channels need to be handled with appropriate methods.
- 4) Spacing of subsurface data and accuracy of interpolations of subsurface data for computation of component volumes of soil and rock.

Permutations of the average end-area method involve:

- 1) Whether sections for the computation involve use of interpolated survey data at locations where measurements were not made and, if so, the method of interpolation. Use of interpolated survey data typically is not required and is undesirable for computation of overall quantities. Use of interpolated subsurface data typically is required for computation of quantities of soil and rock components by this method.

2) Methods for computing lengths, areas, and volumes at channel bends.

Borrow Pit Method. This method involves computing the height between two surfaces at a number of points scattered over the excavation area, determining the area associated with each point, computing the volume associated with each point (volume = height x area), and summing the volumes. This method is most commonly used for computation of component soil and rock quantities, using boring locations for the points that are analyzed.

Use of points in a rectangular pattern simplifies determination of the areas associated with each point but gridded points are not required and typically are not used. Generally the area extending halfway to the next point or to the limit of the region of interest, whichever is closer, should be used for the area associated with a point. Therefore total area should be divided into sub-areas that lie closest to each point. The partition or tessellation of an area into sub-areas that lie closest to each point is known as a Voronoi diagram (also Dirichlet or Thiessen diagrams) and the sub-areas are known as Voronoi tessellation areas. See Figure 3 in paragraph “Triangle Method” for an example of Voronoi tessellation.

Permutations of the borrow pit method involve:

- a) Whether a single spot point value at the point or average values over the area associated with the point are used if more than one point value is located in the area. This situation is typical for the ground surface, for which many spot elevation values are usually available within the area associated with a boring. Average values of ground surface elevations are more accurate and are recommended if the ground surface varies significantly over the area associated with the boring.
- b) How the area associated with each point is determined.

Triangle Method. This method involves computing a set of triangles to model each of two surfaces and computing the volume between the two surfaces. The method is generally computationally intensive and can practicably be done only with a computer program. The computed volume is mathematically exact for the modeled surfaces. However, the triangles are an interpolation between measured points and deviations of the triangle model from the true surface between the measured points can be a significant source of error if the point data is not suited for the triangle method.

The process of computing the set of triangles to model a surface from surface point data is known as triangulation. A common method of triangulation that generally models the surface well, except for the pattern of points described in the following paragraph, is known as the Delaunay triangulation. The Delaunay triangulation method is closely related geometrically with the previously described Voronoi tessellation method. If lines are drawn between each pair of points whose Voronoi tessellation areas are contiguous, the set of triangles obtained by connecting these lines are Delaunay triangles. With few exceptions, this triangulation provides a unique solution of triangles and associated Voronoi tessellation areas. The exceptions occur when more than 3 points lie exactly on a circle with no other points contained within the circle, most commonly occurring for four points forming an exact rectangle. In this case either of the two possible triangle combinations within the rectangle can be arbitrarily selected and provide a reasonably good model of the surface. Figure 3 shows an example of Delaunay triangulation and Voronoi tessellation for a small set of points in an irregular pattern:

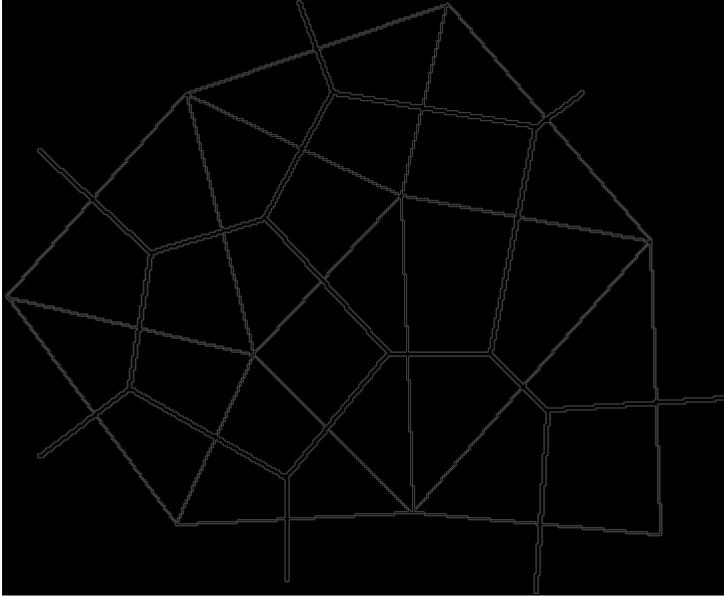


Figure 3: Example of Delaunay triangulation (thin lines) and Voronoi tessellation (thick lines)

Assuming adequate spacing and coverage of points, the only pattern of points that has been found to produce a poor triangle surface model using Delaunay triangulation method are points which both (a) have greatly disparate spacing between points in perpendicular lateral directions and (b) do not form straight or nearly straight lines of points. Unfortunately both of these properties are not uncommon in surveys done by cross-sections. Figure 4 shows an rather extreme example of poor triangulation that can result from use of cross-section surveys. The points forming the large triangles in Figure 4 are arbitrarily and incorrectly assigned much greater weight than the points forming the smaller triangles. A proper triangulation of point data that is approximately uniformly spaced would have triangles of similar size, which would assign approximately the same weight to each point. The triangle model for the nearly straight survey line on the right is fairly typical of cross-section surveys and provides a much better interpolation of the survey data than the more curved survey line in the center, but still does not provide equal weight to each point. The triangle method and other methods using Delaunay triangulation for interpolated data should be not be used with cross-section survey data, or else the triangles that are created should be carefully checked and edited if the point data is not triangulated reasonably.

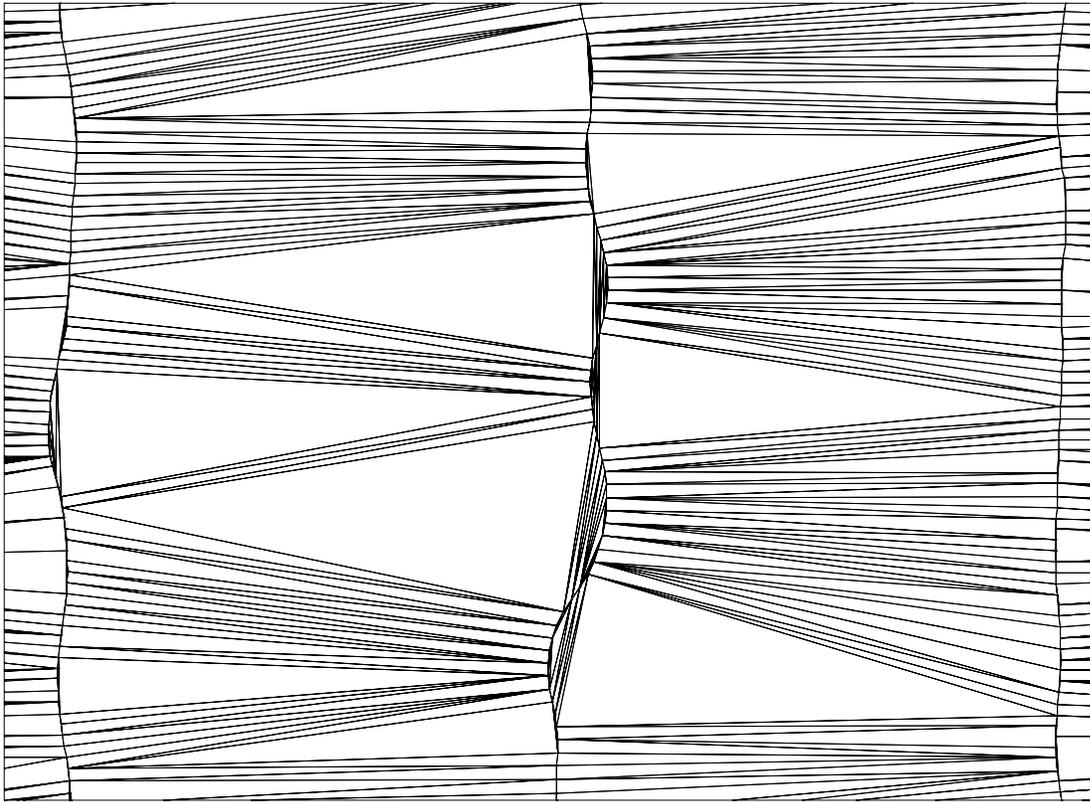


Figure 4: Example of Delaunay triangulation illustrating poor triangulation between cross-section survey lines (section spacing = 500' +/-, point spacing along section = 10' +/-)

An alternate non-Delaunay triangulation method that can produce a good model for the type of point data illustrated in Figure 4 can be developed by selecting and connecting points on adjacent sections to form lines as parallel as possible to one or more slope reference lines and connecting these lines to form triangles. For existing dredged channels, the closest template toe of slope line generally is suitable for the slope reference line. For other types of projects and any existing dredged channels that deviate significantly from the design template, some trial-and-error work and/or judgement generally needs to be used to estimate a suitable slope reference line from the survey data. After lines of points approximately parallel to the slope reference lines are determined, these points can be imported as breakline points in Inroads software. Alternately, a triangulation method can be implemented in Inroads using the “Generate Transverse Feature” command to model a surface between a pair of adjacent sections that must be drawn as 3D linestrings. Presently both of these procedures require significant manual procedures and are time-consuming enough to be undesirable to impracticable for surveys with a large number of points. If triangulated surface models are needed from this type of survey point data, more automation is needed so that one of these or a similar method can be used efficiently using Inroads. Otherwise, EN needs to investigate and acquire other earthwork design software to determine if it is suitable.

Boring Sample Length Method. This method involves computing the length of samples indicating material types of concern (typically rock and common excavation) at each boring with the excavation area, summing the sample lengths for each type, and dividing the summed lengths for each type by the total sample length to determine percentages of each type. This method provides the same result as the borrow pit method if the areas

associated with each boring are assumed to be the same; however, this is generally not an accurate assumption. If desired, the percentages can be applied to total quantity determined by another method to estimate the quantity for each type. This method is generally suitable only for rough estimates of the component soil and rock percentages and quantities.

Comparison of Average End Area with Other Methods. The average end-area method generally has the following advantages over the other methods in their most common forms:

- 1) Comparison of end area vs. station data and/or overlay of cross-sections (if drawn) provide a suitable basis for detecting errors and thereby resolving disputes over differing quantity estimates. It is generally more difficult to detect errors with other methods.
- 2) Incremental and cumulative volumes typically are computed at each station. After the quantities are computed, the volume for any reach can easily be determined by a simple subtraction calculation using the cumulative volumes. The cumulative volumes by station are also useful for producing a mass-haul diagram.

The average end-area method generally has the following disadvantages over the other methods:

- 1) Proper computation of volumes at channel bends is generally more complex than with other computational methods and probably more so than is generally recognized.
- 2) Where survey data is not available for needed section locations at template change locations, interpolation of survey data is required. This interpolation may be subject to dispute.
- 3) Cross-sections are needed at closer intervals than is normal practice (considering 100' to 500' spacing between sections to be normal practice) to achieve the same accuracy as other methods that use survey data points that are more closely spaced than the section spacing.
- 4) Computation of quantities of soil and rock components is typically more difficult and may be more subject to dispute than by the borrow pit method because earth strata require interpolation between borings in this method. Interpolation of earth strata between borings is typically not required for the borrow pit method.

DREDGING SPECIFICATIONS GUIDE

1. Purpose

The following guide defines the process for preparation of dredging specifications for both new work and maintenance projects.

2. Applicable Regulations and Guidance

ER 1130-2-520 Navigation and Dredging Operations and Maintenance Policies

EP 1130-2-520 Navigation and Dredging Operations and Maintenance Guidance and Procedures

Mobile District Design Manual, Oct 99 edition

ER 1110-1-8155 Specifications

3. Background and Discussion

Dredging specifications have historically been prepared by marking up an old specification for a similar contract. This process tends toward inclusion of old information and/or outdated clauses while current applicable requirements are often left out. A Corps of Engineers Guide Specification (CEGS) is needed to standardize specification preparation and improve specification quality.

4. Alternative Processes

There may be instances in which the Dredging Guide specification is not the appropriate basis for preparation of the technical dredging specification. In these special cases, an existing specification may be used to initiate the preparation; however, the Guide Specification should be used as a reference to ensure updated clauses are included.

5. Recommended Process

New work Contracts: EN designer will prepare Bid Schedule, Section 01000 and Section 02500.

(The preparation and compilation of the other specification sections is covered in other sections of the dredging process guide.)

Rental Maintenance Contracts: OP will prepare the technical specifications and coordinate the development of the contract package with CT.

Unit price Maintenance Contracts: OP (field) prepares Bid Schedule, Section 01000 and Section 02500 and provides to OP-TN. OP-TN technical manager will coordinate appropriate schedule and reviews through PAE.

All Contracts: PD prepares section 01410 Environmental Specification.

Guide Specification: EN and OP will jointly develop a dredging guide specification for use in preparation of all dredging technical specifications.

6. Process Checklist

Bid Schedule, Section 01000 and Section 02500 prepared by appropriate office using the CEGS.

SUBSURFACE INVESTIGATIONS GUIDE

1. Purpose

The following guide defines the process for determining the need and amount of subsurface investigations for dredging projects and responsibilities for obtaining needed information.

2. Applicable Regulations and Guidance

ASTM D420, Guide to Site Characterization for Engineering, Design, and Construction Purposes
ASTM D2487, Classification of Soils for Engineering Purposes (Unified Soil Classification System)
EM 1110-2-5025, Dredging and Dredged Material Disposal
EM 1110-2-5027, Confined Disposal of Dredged Material

3. Background and Discussion

Geotechnical subsurface information is collected, interpreted and used to select dredging equipment and methods; to determine the location, characteristics, physical properties, and quantities of the different types of materials to be dredged; to estimate production rates for the materials sampled by the borings, to estimate project costs; to assess dredging risks; and to bid, plan and perform the work. Subsurface investigation is required for new work dredging projects. For maintenance dredging projects, this information is typically based on experience with materials dredged in previous dredging events for the same project and subsurface investigation generally is not required. For both new work and maintenance dredging projects, subsurface investigation may be required for design of upland and marine disposal dikes where soft foundation conditions for dikes may exist or if the suitability of materials for use as borrow material for dike construction needs to be determined. They may also be required if beach nourishment is anticipated; in order to locate and/or delineate sources of sand.

Subsurface information is specifically required for the “Character of Materials” paragraph in the dredging specification. For maintenance dredging projects, OP should write the “Character of Materials” paragraph. For new work projects, this paragraph should be written by EN.

4. Alternative Processes

Alternative processes are addressed in paragraphs 3 and 5.

5. Recommended Process

(1) The Project Manager should determine the required composition of the Project Delivery Team, including whether an Engineering Division Geotechnical Section (EN-GG) team member is needed. An EN-GG team member is needed if a subsurface investigation is needed considering the guidelines in paragraph “Background and Discussion”, or if other geotechnical work is needed for the project. If applicable, the Project Manager should request that the EN-GG section chief assign an EN-GG team member to the Project Delivery Team. The following are applicable if an EN-GG team member is requested.

(2) The EN-GG chief should assign an EN-GG team member to the Project Delivery Team upon request from the Project Manager. The EN-GG team member should attend the initial kick-off meeting. Responsible offices and schedules for acquisition of survey data and development of site plans should be established during or soon

after the initial kickoff meeting. Preliminary site plans, hydrographic, geophysical or topographic surveys of the channel and placement areas should be scheduled to be available prior to the start of preparation of the detailed scope of work for the subsurface investigation.

(3) The EN-GG team member should research and review relevant existing subsurface investigation data and/or should make a site visit to determine the need for additional subsurface investigations. The EN-GG team member should determine the need for additional subsurface investigations including geophysical methods such as Acoustic Impedance Surveys (AIS), immediately following the initial kick-off meeting, review of existing data, and site visit, if one is made. The following paragraphs (4) to (9) are applicable if additional subsurface investigation is needed. Otherwise, skip to paragraph (10).

(4) The EN-GG team member should develop a preliminary scope of work, schedule, and cost estimate for the subsurface investigation(s) and laboratory analysis of soils.

(5) The EN-GG Section should determine if the drilling and sampling for the geotechnical investigation will be performed with in house personnel (usually Core Drill Unit of EN-GG Section), by contract, or by other Government personnel (possibly units from other Corps districts or laboratories). In house personnel will generally perform drilling unless schedule requirements cannot be met with available personnel. The EN-GG Section should determine if the laboratory testing for the geotechnical investigation will be performed by contract or by other Government personnel (typically the ERDC geotechnical laboratory in Vicksburg, MS). EN-GG will coordinate with EN (survey section) for the acquisition of AIS. The schedule for subsurface investigation and AIS if applicable should include time required for setting up contracts, if drilling and sampling or laboratory testing is to be contracted out.

(6) Prior to completing the scope of work for the subsurface investigation(s), the responsible Project Delivery Team member should provide a site plan or plans showing proposed channel alignment and toe of slope lines for the channel(s) and surveys. The proposed dredge disposal area(s) and/or nourishment site(s) shall also be shown if such construction is anticipated in conjunction with the dredging.

(7) The EN-GG team member should prepare the detailed scope of work for the subsurface investigations including AIS survey lines, drilling and sampling instructions, target depths and elevations for each boring, and target boring location map. The following guidelines should be followed to the extent practicable:

a. Borings are needed within the areas to be dredged for new channels, within the foundation areas of proposed dikes if the foundations may be soft; and within proposed borrow areas if the character of the borrow material is not already known. Borings made outside these areas without other purpose are of little use, and generally should be considered as lost effort. Site plans should be sufficiently developed when planning for the subsurface investigation so that borings can be properly located.

b. Obtain new borings if there is reason to expect that subsurface conditions may have changed significantly since existing borings were made. For maintenance dredging projects, the borings drilled for new work generally should not be considered reliable. Other projects that include earth moving (borrow, excavation, fill, etc.) can also change subsurface conditions. Otherwise, existing borings generally can be considered reliable. Natural scour and shoaling can change subsurface conditions at some locations, but generally only at shallow depth.

c. Obtain an adequate number of borings. A minimum of 3 borings is recommended in all cases. The recommended number of borings varies depending on the size of the areas to be dredged, whether rock is anticipated, the anticipated degree of uniformity of the materials to be dredged, whether geophysical surveys such as acoustic impedance surveys are made to supplement the boring data, and the purpose of the sampling. The equation $N = 2 + L/S$ may be used for channels 300 feet wide or less; where N = the recommended number

of borings excluding any offset borings that may be required, L = the length of channel to be dredged excluding any area that is already deeper than the bottom of allowable overdepth, and S = a boring spacing parameter that varies. Additional borings should be used for large bend widening areas and turning basins, other features such as sediment traps, or if the channel width exceeds about 300 feet.

Where acoustic impedance or similar geophysical surveys are not made, the spacing parameter S for channels is recommended to vary approximately as:

Spacing S, feet	Suitable for
250	Non-uniform areas with some rock
500	Areas to be investigated for potential use as beach fill, rock not anticipated
1000	Relatively uniform areas, rock not anticipated, and investigation for use as beach fill not required

Where acoustic impedance or similar geophysical surveys are made to supplement the boring information and these geophysical surveys indicate relatively uniform conditions, the spacing parameter S should be increased to approximately twice the indicated values.

c. Locate borings to obtain an efficient and complete coverage of the volume to be dredged. Borings should not be placed in channel areas that are sufficiently deep that no dredging is required. Frequently good coverage is provided by evenly spaced borings located slightly inside the channel toe of slope lines, alternating from one side to the other.

d. Investigate to a depth well below the required dredging depth. Recommended depths of borings are 10 feet below required dredging depth.

e. Perform geotechnical investigations, boring and geotechnical testing according to professional engineering standards.

f. Store and handle samples appropriately for testing. Loss of sample moisture and improperly handling of undisturbed samples affect the geotechnical properties obtained from testing of the sample. All samples should be placed in properly sealed containers to prevent loss of moisture in the sample.

g. Obtain necessary data for and include accurate elevations on drilling logs. The same vertical datum should be used for borings as was used for hydrographical or topographic surveys at the boring locations. Record and consistently use the same depth datum (the level where depth equals zero) for recording depths on the field drilling logs. The depth datum typically should be the working platform level, the water surface level, or the ground surface level. Measure and record the distances between each of these levels. Typically for marine borings, the date and time of measurements of each distance from water surface to ground surface should be recorded and a tide correction based on the measurement time should be applied to determine ground surface elevations from these distances. Document the procedures used to measure elevations and state the estimated accuracy in the subsurface investigation report. While a vertical accuracy of less than +/- 0.1 feet accuracy is desirable, procedures that provide elevations accurate to within +/- 0.5 feet (considering all sources of error) are acceptable. All depths and elevations should be measured and recorded to the nearest 0.1-foot or 0.05-meter (maximum).

h. Supplement borings with numerous jet probes to investigate the top of rock or hard and cemented soils.

i. Use and correlate geophysical data such as acoustical impedance profiles to provide information to supplement the borings.

j. The drilling inspector should visually classify and describe all samples in accordance with ASTM D2487, Classification of Soils for Engineering Purposes (Unified Soil Classification System). Colors of materials that potentially may be used for beach fill generally should be described in accordance with Munsell Color charts.

k. Appropriate sampling and in-situ tests should be performed for the materials recovered during drilling.

Boring Type	Suitable for
Vibracore	Marine borings in silts, clays, and sands to depths of approximately 25 to 30 feet; except for hard soil or very dense or cemented sands
Standard Penetration Test (SPT)	All soils
Core barrel (HQ or larger)	Rock
Undisturbed samples (Shelby tube, Dennison barrel, etc.)	All soils except clean sands and gravels

Most marine borings in coastal regions are accomplished by vibracore because of this drilling method has relatively low cost and frequently produces satisfactory samples. If required boring penetration is not achieved or if sample recovery is not adequate where a vibracore boring is attempted, one vibracore boring should be made offset a short distance (about 5 to 10 feet) from the original boring. If the offset vibracore boring does not achieve adequate boring penetration depth and sample recovery, an offset SPT boring is recommended. Drilling logs should be made and included in contract documents for all borings. Data collected from unsatisfactory borings should not be discarded. The core from vibracore borings should be cut open into halves longitudinally and photographed with a tape measure placed alongside the core sample for scale. Samples should be collected for visual classification and subsequent lab testing and/or storage. At least one representative sample should be obtained and visually classified for testing of each stratum that is at least 1.0-foot thick. A stratum is defined as a layer of soil or rock that has specific physical properties which are different than adjacent materials. Also at least one sample should be obtained for every 3-feet of vibracore boring for thicker soil strata.

Standard splitspoon (SPT) borings generally should be made at locations of unsatisfactory vibracore borings so that adequate subsurface data is collected at the required locations. Additional SPT borings should be made at several representative locations and at locations of unsatisfactory vibracore borings so that the relative density of sands and the consistency of clays or silts can be determined by correlation with the SPT N values (blow counts) at those locations. SPT borings generally should be continuously sampled and visually classified on contiguous 1.5-foot or 0.5-meter sample intervals at depths shallower than 15 feet and should either be continuously sampled or sampled on 3-foot centers (a 1.5-foot unsampled interval followed by a 1.5-foot sampled interval) at depths greater than 15 feet.

The maximum size of gravel that can be recovered with a standard splitspoon sampler is limited by the 1-3/8 inch inside diameter of the splitspoon. The maximum size of gravel or cobbles shown on drilling log should be based on the larger of the maximum particle size identified from the cuttings of auger used to clean the hole and the maximum particle size recovered in the splitspoon sample.

Rock samples should be obtained by use of an adequate size rock core barrel after refusal of splitspoon or vibracore occurs. It is possible for the splitspoon to sample cemented sands that will create difficulty for some dredging equipment. Thus it is imperative that samples of cemented sands be collected for testing. A geologist should perform visual classification of rock samples.

m. Perform in situ and laboratory tests appropriate for material in adequate number.

In Situ or Field Test	Clay	Silt	Clayey & Silty Sand	Clean Sand	Rock
Standard Penetration Test	Yes	Yes	Yes	Yes	No
Total Core Recovery	Yes if cored	Yes if cored	Yes if cored	Yes if cored	Yes
Rock Quality Designation	No	No	No	No	Yes
Fracture Index	No	No	No	No	Yes
Torvane	Yes	Yes	Yes	No	No
Pocket Penetrometer	Yes	Yes	Yes	No	No
Point Load Test	No	No	No	No	Yes

Laboratory Test	Clay	Silt	Clayey & Silty Sand	Clean Sand	Rock
Moisture Content	Yes	Yes	Yes	No	Yes
Atterberg Limits	Yes	Yes	Yes	No	No
Unit Weight	Yes	Yes	Yes	No	No
% Finer than #200 Sieve	Yes	Yes	Yes	Yes	No
Sieve Analysis	No	Yes	Yes	Yes	No
Hydrometer Analysis	No	Yes	No	No	No
Shear Strength	Yes	Yes	Yes	No	No
Unconfined Compressive Strength	Yes	No	No	No	Yes
Column Settling	Yes	Yes	Yes	No	No

Notes: Soil samples tested for unit weight, shear strength, and compressive strength ideally should be made on undisturbed samples. In cases where sample recovery is good and disturbance is not apparent, these tests can also be made on vibracore samples. Unconfined compressive strength tests should be made on rock core samples. Torvane, pocket penetrometer, SPT, shear strength, and compressive strength tests are alternative tests for determining the strength and consistency of clay, silt, clayey sand, and silty sand. Generally one or more, but not all, of these tests are needed.

8. If the drilling and sampling for the subsurface investigation will be performed by contract, the laboratory testing generally should also be performed using the same contract. The EN-GG team member should provide a detailed scope of work and government cost estimate to CT. The scope of work and cost estimate should include requirements for drilling, laboratory testing, and disposition of samples. CT will, if a standing contract that can be used does not exist, advertise and award the subsurface investigation contract. Drilling logs and other results of subsurface investigation should be provided to the EN-GG team member upon completion of the investigation.

9. If the drilling and sampling for the subsurface investigation will be performed by in house personnel, the EN-GG team member should coordinate subsurface investigation requirements with the Core Drill Unit drilling inspector. During drilling and sampling, the EN-GG team member should review results and coordinate with the drilling inspector to make any changes that may be needed. Upon completion of drilling and sampling, the EN-GG team member should coordinate and request appropriate laboratory testing.

10. The EN-GG team member should prepare the “Drilling Logs and Laboratory Test Data” appendix to the specifications and the “Character of Materials” paragraph for new work projects. The “Drilling Logs and Laboratory Test Data” appendix should include all drilling logs and geotechnical test data from subsurface investigations that are relevant to the project. Narrative assessments based on the subsurface investigation data should be included in contract documents only in the “Character of Materials” paragraph. Profiles containing interpolations, extrapolations, and correlations based on the subsurface investigation data should not be included in contract documents.

11. EN-GG should be the custodian of all the subsurface investigation data (including drilling logs, geophysical tests, in-situ tests, and geotechnical laboratory tests) made for the project. This data should be maintained and be available for use on future projects at the site.

DREDGING PROJECTS ENVIRONMENTAL GUIDE

1. Purpose

The following guide defines the process for conducting coastal projects and ensuring that projects comply with all applicable laws and regulations and that the proper state certifications/permits and environmental clearances are obtained. Once these requirements are achieved, contracts can be awarded in a timely manner.

2. Applicable Regulations and Guidance

Appropriate environmental clearances must be obtained as defined by the National Environmental Policy Act (NEPA). Other applicable laws and regulations include the Endangered Species Act, Clean Water Act (CWA), Clean Air Act, U.S. Fish and Wildlife Coordination Act, National Historic Preservation Act, Coastal Barrier Resources Act (CBRA), Magnuson–Stevens Fishery Conservation and Management (MSFCMA), Marine Protection, Research, and Sanctuaries Act (MPRSA), and Coastal Zone Management Act (CZM). Another pertinent guideline is 33 CFR (US Army Corps of Engineers) Navigation and Navigable Waters.

3. Background and Discussion

The U.S. Army Corps of Engineers is responsible for regulating certain activities in the nation's waters, resulting in several laws and judicial decisions, the program has evolved to one involving the consideration of the full public interest by balancing the favorable impacts against the detrimental impacts. This is known as the "public interest review." The program reflects the national concerns for both the protection and utilization of important resources. As a result all projects shall require proper environmental clearances and coordination. State Water Quality Certification (WQC) is required for all new and maintenance dredging work and vary from state to state. These requirements must be satisfied before entering into certain contracting activities.

4. Reviewing Project Status and Establishing Requirements

A Project Delivery Team (PDT) will be established for each and every O&M project and shall include a representative from OP, PD, OC, EN, and CT. Once it is known that a project will be conducted, a PDT kick-off meeting shall be conducted. At this meeting the operational requirements will be established. This will include whether the project is new work or maintenance as well as other special operational and technical requirements that apply. At this time, the certification status of the project will be reviewed along with all of the environmental requirements. Issues to be considered include:

- What are the project operational requirements?
- Is a new certification, re-certification, or permit modification required?
- What is the status of existing permit?
- What are the conditions specified in the existing permit?

- What environmental issues must be addressed?
- What information is required to obtain all certifications and environmental clearances?
- What is the project schedule and are there any schedule constraints?

Once these considerations are addressed and the required information identified, the appropriate certification and environmental compliance procedures can be initiated.

5. Process List. The following is a specified list of procedures for certification and compliance process that is necessary to obtain WQC and other appropriate environmental clearances. If a project is under an existing permit, then measures must be taken to make sure that the proposed action will be in compliance with the specifications of the permit and that no other environmental clearances will be required. The list below summarizes the overall procedures required in certification and compliance processes:

- A. Review existing data and consult with OP to identify any additional technical and regulatory needs
- B. Initiate drafts of Environmental Assessment (EA) and 404(b)(1) Evaluation Report and draft Public Notice
- C. Draft Public Notice
 - 1. OP review and provide comments on draft Public Notice and Legal Notice (Legal Notice not required by Mississippi)
 - 2. PD review and provide comments on draft Public Notice and Legal Notice
 - 3. State agency reviews and provides comments to joint draft Public Notice and Legal Notice
- D. Issue Public Notice
 - 1. Finalize and publish Public Notice and Legal Notice
 - 2. Draft of EA and 404(b)(1) Evaluation Report completed.
- E. Initiate environmental coordination (may be initiated prior to Public Notice if warranted)
 - 1. Section 7 Coordination
 - 2. EFH & Critical Habitat coordination
 - 3. Historic and cultural resources coordination
- F. Respond to Public Notice Comments (30 Days after published)
- G. Request Water Quality Certification and concurrence with Coastal Zone Consistency (Includes Providing Proof of Publication of Legal Notice and Transmission of Public Notice Comments to State Agency. Not required by Mississippi)
- H. Ocean Dredged Material Disposal Site (ODMDS) coordination if ocean disposal required.
- I. Request National Pollution Discharge Elimination System (NPDES) permit if upland disposal areas are to be constructed

J. Receive applicable certifications: WQC, ODMDS, & NPDES

K. Receive environmental clearances

1. Section 7 Clearances: T&ES, EFH, Critical Habitats
2. Receive historic and cultural resources clearances
3. Other environmental clearances

L. Inform OP, CT, and other pertinent District elements of completion of WQC and environmental clearances

At this point, the pertinent contracting activities can be initiated. However, there are other environmental requirements that must be completed and include:

M. Finalize Findings of No Significant Impact (FONSI), and 404(b)(1) Evaluation

N. Prepare Statement of Findings (SOF) including FONSI, EA, and 404(b)(1) for DE signature

O. Finalize other environmental documents

P. Receive signed documents from executive office

6. Required Information to Obtain Certifications

In order to prepare the Public Notice and WQC application package, certain information is required by the State regulatory agencies. Much of the information that goes into these documents must be supplied by OP or EN and is essential in obtaining the state certifications. Below is a list of required information that will be furnished by OP or EN. OP will provide the information pertaining to maintenance work and information for new work will be provided by EN.

A. Maps and Drawings showing:

1. Vicinity map
2. Plan view
3. Cross-sections
4. Project Dimensions
5. Distance from fixed structures (if any)
6. Approximate MHWL (mean high water line)
7. Scale
8. Coordinates and coordinate system used
9. Datum
10. North arrows where applicable

B. Project Description

1. Proposed action
2. Materials used
3. Quantities of material
4. Quantities of material below and above MHWL

5. Description of all structures within project area
6. Schedules and timeframes

Plans and Specifications (P&S) - Environmental Checklist:

	YES	NO
1. National Environmental Policy Act Documentation		
a. Included in P&S - Specific Federal Requirements	_____	_____
2. Section 307 Concurrence (Coastal Zone Consistency)/ Section 401 Concurrence (Water Quality Certification)	_____	_____
a. Included in P&S - Specific Federal Requirements	_____	_____
3. Threatened and Endangered Species		
- Endangered Species Act		
- Marine Mammal Protection Act		
a. Included in P&S - All Specific Conservation Recommendations		
b. (i.e. Gulf sturgeon, Alabama red-bellied turtles, manatees, Critical Habitat, Dredging Windows and Turtle Observers, etc.)	_____	_____
4. State Historic Preservation Officer Concurrence	_____	_____
a. Included in P&S - Specific State Requirements		
6. National Pollution Discharge Elimination System (NPDES)		
a. Included in P&S (if applicable) all Specific Best Manage- ment Practices	_____	_____
7. Essential Fish Habitat Concurrence		
a. Included in P&S - Specific Requirements	_____	_____
8. Work for Others (if applicable).		
a. Section 404 USACE Permit	_____	_____
9. ODMDS Concurrence.		
a. Included in P&S - Specific Requirements	_____	_____
10. Coastal Barrier Resources Act (CBRA) (if applicable)	_____	_____
11. Wetland Delineation and Mitigation (if applicable)	_____	_____

Dredging

CONTRACT ADMINISTRATION GUIDE

1. Purpose

The following guide defines the process for Contract Administration on Modifications and Close out of Contracts for both new work and maintenance dredging projects.

2. Applicable Regulations and Guidance

Construction Contract Administration Manual 1993
Construction Contract Administration Manual 2003

3. Backgrounds and Discussion

It is recommended that all Site Offices have a copy of the new manual. This Manual will help you with CEFMS, Claims, Modifications, Technical analysis, Government estimate etc.

4. Recommend Process and Process Checklist

Attached is the 1998 version of Contract Administration Process for Operations Division; in this document is a summary on how to administer a Modification for unit price and rental dredging contracts. The manual reference is based on the 1993 Construction Contract Administration Manual that has been recently updated in 2003. The Checklist is still valid today and the reference in the new manual is in Chapter 2 also. (Attachment 1 for Contract Guide)

Attached in Excel is a Checklist developed for the site office to perform Final close out for Rental and Unit price contract. This tool is valuable to better organize the site office close out procedures (Attachment 2 for Contract Guide)

5/6. Recommend Process and Process Checklist

Attached is the 1998 version of Contract Administration Process for Operations Division; in this document is a summary on how to administer a Modification for unit price and rental dredging contracts. The manual reference is based on the 1993 Construction Contract Administration Manual that has been recently updated in 2003. The Checklist is still valid today and the reference in the new manual is in Chapter 2 also. (Attachment 1 for Contract Guide)

Attached in Excel is a Checklist developed for the site office to perform Final close out for Rental and Unit price contract. This tool is valuable to better organize the site office close out procedures (Attachment 2 for Contract Guide)

MOBILE DISTRICT
CONTRACT ADMINISTRATION
PROCESS
FOR OPERATIONS DIVISION

SEPTEMBER 1998



Service to the Nation - Customer Focused - The Standard is Excellence

**CONTRACT ADMINISTRATION PROCESS
FOR MODS ON UNIT PRICE DREDGING /CONSTRUCTION**

CHECK LIST ITEMS

MANUAL REFERENCE

- | | |
|--|----------------------|
| 1. OBTAIN CHANGE ORDER NO. FROM CD-CM ON MODIFICATION REQUEST | CHAPTER 2 SECTION 5 |
| 2. REQUEST FOR PROPOSAL FROM CONTRACTOR. | CHAPTER 2 SECTION 5 |
| - CD PREFERENCE IS BY USING FORM CESAM 1133-E. | |
| - LETTER TO CONTRACTOR OR ORALS FOLLOWED BY A LETTER. | |
| 3. GOVERNMENT ESTIMATES (GE): | CHAPTER 2 SECTION 6 |
| - MODS <\$100K AN ESTIMATE IS NOT REQUIRED, HOWEVER A DETAILED COST & PRICE ANALYSIS WILL BE PREPARED ON THE PROPOSAL. | |
| - MODS >\$100K G.E. PREPARED BY SITE OFFICE AND APPROVED BY CD-CM. | |
| 4. FUNDING; SITE MANAGER WILL SET UP PR&C, PROVIDE COPY WITH MOD AND CD WILL SET UP THE OBLIGATION/DEOBLIGATION FOR CT APPROVAL. | CHAPTER 2 SECTION 18 |
| 5. MEMORANDA REQUIRED WITH MODIFICATIONS: | |
| - PRENEGOTIATION MEMORANDUM, | CHAPTER 2 SECTION 9 |
| - RESUME OF NEGOTIATION. | CHAPTER 2 SECTION 11 |
| - COST & PRICE ANALYSIS MEMORANDUM ON THE PROPOSAL. | CHAPTER 2 SECTION 8 |
| - TECHNICAL ANALYSIS , CERTIFICATION OF COST AND PRICING DATA AND AUDIT FOR MODS OVER \$500,000 . | CHAPTER 2 SECTION 8 |
| 6. PREPARE MODIFICATION SCOPE ON FORM SF 30 FOR SIGNATURE. | CHAPTER 2 SECTION 12 |
| 7. PREPARE CONSENT OF SURETY FORM FOR MODS > \$50,000 BUT < \$100,000 * | CHAPTER 2 SECTION 15 |
| 8. PREPARE MEMORANDUM THRU OP-T TO CD-CM REQUESTING CD TO PROCESS THE MODIFICATION WITH ATTACHED PAPER WORK. | |

* GREATER THAN \$100K THE CONSENT OF SURETY WILL BE PREPARED BY CD.



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CONTRACT ADMINISTRATION PROCESS FOR MODS ON RENTAL DREDGING

CHECK LIST ITEMS

MANUAL REFERENCE

- | | |
|--|----------------------|
| 1. OBTAIN CHANGE ORDER NO. FROM CT ON MODIFICATION REQUEST. | |
| 2. REQUEST FOR PROPOSAL FROM CONTRACTOR. | CHAPTER 2 SECTION 5 |
| - LETTER TO CONTRACTOR OR ORALS FOLLOWED BY A LETTER. | |
| 3. GOVERNMENT ESTIMATES (GE): | CHAPTER 2 SECTION 6 |
| - MODS <\$100K AN ESTIMATE IS NOT REQUIRED, HOWEVER A DETAILED COST & PRICE ANALYSIS WILL BE PREPARED ON THE PROPOSAL. | |
| - MODS >\$100K G.E. PREPARED BY FIELD AND APPROVED BY OP | |
| 4. FUNDING: SITE MANAGER WILL SET UP PR&C AND PROVIDE COPY WITH MEMO AND CT WILL SET UP THE OBLIGATION/DEOBLIGATION AND APPROVE IT. | |
| 5. MEMORANDA REQUIRED WITH MODIFICATIONS : | |
| - PRENEGOTIATION MEMORANDUM. | CHAPTER 2 SECTION 9 |
| - RESUME OF NEGOTIATION. | CHAPTER 2 SECTION 11 |
| - COST & PRICE ANALYSIS MEMORANDUM OF THE PROPOSAL. | CHAPTER 2 SECTION 8 |
| - TECHNICAL ANALYSIS , CERTIFICATION OF COST AND PRICING DATA AND AUDIT FOR MODS OVER \$500,000 . | CHAPTER 2 SECTION 8 |
| 6. PREPARE CONSENT OF SURETY FORM FOR MODS > \$50,000 BUT < \$100,000. | CHAPTER 2 SECTION 15 |
| 7. PREPARE MEMORANDUM THRU OP-T TO CT REQUESTING THEM TO PREPARE THE SF-30. IN THE MEMO, PROVIDE A SHORT DESCRIPTION OF WHAT WILL BE INSERTED INTO BLOCK 14 OF THE SF-30. ATTACH THE APPROPRIATE PAPER WORK. | |



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CONTRACT ADMINISTRATION PROCESS FOR ADMINISTRATIVE MODS

CHECK LIST ITEMS FOR RENTAL DREDGING CONTRACTS

1. OBTAIN CHANGE ORDER NO. FROM CT ON MODIFICATION REQUEST:
2. PREPARE MEMORANDUM THRU OP-T TO CT REQUESTING THEM TO PREPARE THE SF-30 TO INCREASE/DECREASE FUNDS UNDER THE CONTINUING CONTRACT CLAUSE, ALONG WITH COPY OF THE PR&C SO THAT CT CAN SET UP THE OBLIGATION/DEOBLIGATION IN CEFMS AND APPROVE IT. IF THIS ADJUSTMENT IS DUE TO A QUANTITY ADJUSTMENT, BOTH ACTIONS CAN BE COVERED IN ONE MOD.
3. FOR OTHER MODS SUCH AS CHANGE OF ASSIGNMENTS OR CONTRACTOR CHANGE OF ADDRESS (ADMIN MODS). CT WILL PREPARE THE MODIFICATIONS.

CHECK LIST ITEMS FOR UNIT PRICE DREDGING CONTRACTS

1. OBTAIN CHANGE ORDER NO. FROM CD-CM ON MODIFICATION REQUEST:
2. PREPARE MEMORANDUM THRU OP-T TO CD-CM REQUESTING THEM TO PREPARE THE SF-30 TO INCREASE/DECREASE FUNDS UNDER THE CONTINUING CONTRACT CLAUSE, ALONG WITH COPY OF THE PR&C SO THAT CD CAN SET UP THE OBLIGATION/DEOBLIGATION IN CEFMS SO THAT CT CAN APPROVE IT. IF THIS ADJUSTMENT IS DUE TO A QUANTITY ADJUSTMENT, BOTH ACTIONS CAN BE COVERED IN ONE MOD.
3. FOR OTHER MODS SUCH AS CHANGE OF ASSIGNMENTS OR CONTRACTOR CHANGE OF ADDRESS, (ADMIN MODS). CD WILL PREPARE THE MODIFICATIONS.



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CONTRACT ADMINISTRATION PROCESS FOR CONSTRUCTION SERVICE CONTRACTS < \$100,000.00

CHECK LIST ITEMS

1. PREPARE THE SCOPE OF WORK OR THE PLANS AND SPECIFICATIONS OF THE SERVICES REQUESTED:

- TECHNICAL PROVISIONS
- MAPS/DRAWINGS
- WAGE RATES

2. PREPARE THE DD FORM 2579 FOR COMPETITIVE OR SINGLE SOURCE SERVICES.

3. REQUEST FOR PROPOSAL FROM CONTRACTORS/SOURCES ON THE SCOPE PREPARED

- LETTER TO CONTRACTOR SIGNED OR ORALS FOLLOWED BY A LETTER.

4. GOVERNMENT ESTIMATES (GE) THIS CAN BE DONE EITHER BY THE SITE MANAGERS OR OP-T.

5. FUNDING: SITE MANAGER WILL SET UP PR&C AND PROVIDE COPY WITH THE MEMO TO CT.

6. NEGOTIATED SERVICE CONTRACTS, MEMOS REQUIRED:

- PRENEGOTIATION MEMO
- RESUME OF NEGOTIATION

7. PREPARE MEMORANDUM TO CT REQUESTING AWARD OF THE PURCHASE/SERVICES WITH THE ABOVE ATTACHMENTS WITH COPY FURNISHED TO OP-T

NOTE: SOME OF THE PURCHASE REQUEST CAN BE DONE IN OP-T IF SITE MANAGER REQUEST IT.



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<u>CHECKLIST</u> for " RENTAL " CONTRACT COMPLETION (final close-out)	
Action Date	
Request / Receive:	FINAL CONTRACTOR PAYMENT ESTIMATE / INVOICE - from contractor
Prepare:	RELEASE OF CLAIMS - do not use SAM form 1019 per OC
Prepare:	FINAL PAYMENT ESTIMATE (ENG form 93, Mar 78) - excel spreadsheet
Prepare:	PERFORMANCE EVALUATION (DD form 2626, Jun 94) - copy mailed to CD-M, Marian Ellison 690-2186
Date	- copy mailed to Contractor if rating is satisfactory or above average, otherwise any other rating must be sent to contractor by Contracting Officer
Date	- somewhere on form state "Official Performance Evaluation is kept on file in CT"
X	- when filing out the middle section that ask for the basic contract amount, put the amount of the obligation on the contract at the time of award. This should be on the SF 1442, award document, and in CEFMS.
X	
Prepare:	FINAL COMPLETION STATEMENT (CESAM form 292-E, Jan 93)
Prepare:	PHYSICAL COMPLETION STATEMENT (MOB form 922, Jan 77)
Mail:	RELEASE OF CLAIMS form to contractor
Receive:	- original signed document required from Contractor
	COVER LETTER DOCUMENT
	FINAL Gov't. prepared PAYMENT ESTIMATE (ENG form 93, Mar 78) - original signed gov't. Eng form 93 required from Contractor
Send:	CONTRACTOR PAYROLL RECORD (ENG form 3180, Jan 69) - copy mailed to OC, Vera G. Whitehead, 690-3281 from Christine Christman
Amend:	Change Contract Obligation payment term from 14 to 30 days in CEFMS (Amend Obligation) (Setup Mod using next available PKA #, then change term(s) from 14 to 30 days)
E-mail CT:	Request CT (Contract Specialist) to approve obligation change in CEFMS - by approving payment term(s) from 14 to 30 days
Prepare:	FINAL PAYMENT ESTIMATE in CEFMS (From ENG form 93, Mar 78)
E-Mail:	Request OC to approve Release of Claims "Y" in CEFMS for final ENG 93 Payment Est. - E-mail message should provide: <i>Contract #, Invoice #, & Line Item #(s)</i>
Request:	Program Manager Approval (Site Manager) and COR Approval (Mitch) with signed closeout mod
Send:	Provide copy of items below to CT, (Contract Specialist) - RELEASE OF CLAIMS - CEFMS FINAL PAYMENT ESTIMATE (PRINTOUT) - PERFORMANCE EVALUATION (DD form 2626, Jun 94) - FINAL COMPLETION STATEMENT (CESAM form 292-E, Jan 93) - PHYSICAL COMPLETION STATEMENT (MOB form 922, Jan 77)
E-Mail:	Request CT, (Contract Specialist) to De-Obligate Funds Give Contract #, Contractor, and applicable CEFMS line items w/amounts to deobligate
Create:	OP-GW , Must create PR&C in CEFMS and attain Labor No. for CT work effort
Send:	PR&C Labor No. to CT (Contract Specialist)

CHECKLIST for "UNIT PRICE" CONTRACT COMPLETION (final close-out)	
Action Date	
Request/Receive:	FINAL CONTRACTOR PAYMENT ESTIMATE / INVOICE - from contractor
Prepare:	RELEASE OF CLAIMS - do not use SAM form 1019 per OC
Prepare:	FINAL PAYMENT ESTIMATE (ENG form 93, Mar 78) - excel spreadsheet
Prepare:	PERFORMANCE EVALUATION (DD form 2626, Jun 94)
Date	- copy mailed to CD-M, Marian Ellison 690-2186
Date	- copy mailed to Contractor if rating is satisfactory or above average, otherwise any other rating must be sent to contractor by CD-M
X	- somewhere on form state "Official Performance Evaluation is kept on file in CT"
X	- when filing out the middle section that ask for the basic contract amount, put the amount of the obligation on the contract at the time of award. This should be on the award document (SF 1442) and / or in CEFMS.
Prepare:	FINAL COMPLETION STATEMENT (CESAM form 292-E, Jan 93)
Prepare:	PHYSICAL COMPLETION STATEMENT (MOB form 922, Jan 77)
Mail/Receive:	RELEASE OF CLAIMS form to contractor - original signed document required from Contractor
	COVER LETTER DOCUMENT (Cover letter doc)
	FINAL Gov't. prepared PAYMENT ESTIMATE (ENG form 93, Mar78) - original signed gov't. Eng form 93 required from Contractor
Send:	CONTRACTOR PAYROLL RECORD (ENG form 3180, Jan 69) - copy mailed to OC, Vera G. Whitehead, 690-3281 from Sharon Morris
Amend:	Change Contract Obligation payment term from 14 to 30 days in CEFMS (Amend Obligation) (Setup Mod using next available PKA #, then change term(s) from 14 to 30 days)
E-mail CT:	Request CT (Contract Specialist) to approve obligation change in CEFMS - by approving payment term(s) from 14 to 30 days for Contract No. and Mod No.
Prepare:	FINAL PAYMENT ESTIMATE in CEFMS (From ENG form 93, Mar 78)
E-Mail:	Request OC to approve Release of Claims "Y" in CEFMS for final ENG 93 Payment Est. - E-mail message should provide: <i>Contract #, Invoice #, & Line Item #(s)</i>
Request:	Program Manager Approval (Site Manager) and COR Approval (Mitch) with signed closeout mod
Prepare:	Closeout Mod (Standard Form 30) req'd if final contract value is different from orig contract value. If so, Contact " CD ", Amalia Torres (690-2470) for Mod and Requisition No.
Send:	Provide original of items below to CD-M, (Amalia Torres) - CLOSEOUT MOD - Standard Form 30 (if req'd) - CONTRACTOR'S ORIGINAL INVOICE - RELEASE OF CLAIMS - FINAL PAYMENT ESTIMATE (Contractor's signed version) (ENG Form 93, Mar 78) - DATE STAMPED PROMPT PAYMENT CERTIFICATION - PERFORMANCE EVALUATION (DD form 2626, Jun 94) - FINAL COMPLETION STATEMENT (CESAM form 292-E, Jan 93) - PHYSICAL COMPLETION STATEMENT (MOB form 922, Jan 77)
Create:	OP-GW, Must create PR&C in CEFMS and attain Labor No. for CD (Amalia Torres) work effort.
Send:	PR&C Labor No. to CD (Amalia Torres)

QUALITY ASSURANCE GUIDE

1. Purpose

The following guide defines the process for quality assurance for both new work and maintenance projects. Quality Assurance processes insure that the Contractor's Quality Control measures are adequate to meet the terms of the Dredging contract.

2. Applicable Regulations and Guidance

ER 1110-1-8155 Engineering Design Specifications
ER 1180-1-6 Construction Quality Management

3. Backgrounds and Discussion

Quality assurance is required on all dredging jobs: Rental, Unit Price, and IDIQ.

Example of a Construction Quality Management Program Compliance assessment will be attached. This checklist is continually updated and will be establish as a living document.

Example of a Quality Assurance Plan is attached to provide guidance

4. Alternative Processes

A Quality Assurance plan will be developed for each dredging project.

The QA plan will be signed and approved by the appropriate Site Manager.

When? Developed by the Site office no later than receipt and approval of the QC plan from the contractor but prior to project construction.

Who? The appropriate Site Office will develop the QA plan.

3-Phase Quality Assurance Method will be followed: Preparatory, Initial, and Final

Preparatory: Accomplished on-site prior to the initiation of each new major work item.

Initial: As the work is begun, another assessment is made of the contractors construction plan.

Final: Normally consists of a survey to insure completion of all contract items.

Note: Irvington Office is currently updating the 3-phase Quality Assurance guidance for dredging jobs. This guidance should form the basis of this Quality Assurance guide. It also will incorporate any QA guidance developed by the Panama City site office.

5. Recommended Process - See Example and Checklist attached.

6. Process Checklist - Attached

EXAMPLE

PENSACOLA NAS CHANNEL QUALITY ASSURANCE PLAN

DATE: June 26, 2003

CONTRACT NO:

CONTRACTOR:

DESCRIPTION: Dredging of Pensacola NAS Channel

DATE OF AWARD:

NTP DATE:

CONTRACT AMOUNT:

COMPLETION DATE:

QA PERSONNEL ASSIGNED

PROJECT ENGINEER: Thomas J. Beckham

CHIEF INSPECTOR: Wolfgang Mueller

INSPECTOR: Alfred Everett

1. PURPOSE

The purpose of this plan is to establish the quality assurance policies and procedures that will be implemented by the Panama City Site Office to obtain quality construction of the above project.

2. SCOPE

The requirements as outlined in this plan contain the policies and procedures that are applicable to above project to be administered by the Panama City Site Office.

3. RESPONSIBILITIES

The Site Manager has overall responsibility for the management of the area office. However, with respect to Quality Assurance the Panama City Site Manager will implement the following steps as a minimum:

- (1) Assure that QA duties and authority to act are clearly understood.
- (2) Ascertain that his staff understands the contract requirements, with respect to the three-phase inspection system.
- (3) Establish standards for his QA personnel's daily reports, and ascertain that the reports are pertinent, factual, and complete.

(4) Establish with his QA supervisors, QA personnel and all other personnel a clear understanding of the actions to be taken in the handling and correction of deficiencies observed.

4. ORGANIZATION:

(1) Site Manager - Responsible for overall management of project office, and project work undertaken by the office.

(2) Quality Assurance – Project engineer, chief inspector and inspectors assure that the Contractor Quality Control is functioning properly and that the specified end product is obtained. This includes initial safety inspection of dredge, review of Contractor contract required submittals, review and verification of plans (and coordinates therein) and specifications, review of permit requirements, verification of Contractor’s positioning system, three-phase inspection of all project elements, turbidity testing, review of Contractor’s QC reports, preparation of QA reports, communication with Contractor and Panama City Site Office.

(3) Contract Administration – Project engineer, engineer intern assure that the contract administration is accomplished in a timely, courteous and thorough manner. The day-to-day activities required to administer the dredge contract. This includes conduct preconstruction conference, review of contract submittals, timely handling of all contractual communication, verification of contract funding, contract modifications, Contractor progress payments, investigation and evaluation of claims.

6. QUALITY ASSURANCE PRIOR TO CONTRACT AWARD:

To assure "Quality Assurance Prior to Contract Award" the following steps will be implemented by the Site Manager and his representatives:

- (1) Review plans and specifications, and any applicable permits.**
- (2) Assign respective personnel.**
- (3) Develop Quality Assurance Plan.**
- (4) Prepare Preconstruction Conference Agenda.**
- (5) Perform dredge plant inspection if applicable.**
- (6) Determine any special equipment requirements, and acquire this equipment.**

7. QUALITY ASSURANCE AFTER AWARD:

To assure "Quality Assurance After Award" the following steps will be implemented by the Site Manager and his representatives:

(1) Schedule a preconstruction conference with Contractor, Government, and regulatory personnel.

(2) Conduct a preconstruction conference with the above parties, prepare minutes of the conference, and send out these minutes to be signed by the Contractor.

(3) Review Contractor's submittals, including:

- a) Order of Work Plan
- b) Survey Plan
- c) Before Dredging Survey of Channel and Disposal Area
- d) Quality Control Plan including Organization Chart and Letters of Appointment and Authority
- e) Accident Prevention Plan including Activity Hazardous Analysis
- f) Contractor Disposal Plan
- g) Contractor's Electronic Surveillance System

(4) Verify that all above Contractor submittals are approved prior to commencement of work.

(5) Verify that copies of all Contractor submittals have been returned to the Contractor, and a minimum of one copy on file at Panama City Site Office, on file at the onsite Corps of Engineers Inspectors Office, and on file at the onsite Contractor's office.

(5) Insure that the Government before dredge surveys are conducted within the contract and regulation prescribed time limitations.

8. QUALITY ASSURANCE DURING CONSTRUCTION:

To assure "Quality Assurance During Construction" the following steps will be implemented by the Site Manager or his representatives:

(1) Conduct, prior to start of work, a coordination meeting with contractor QC person, prepare minutes of the meeting to be signed by contractor and Quality Assurance representative. This meeting shall cover as a minimum:

- a) Implementation of the Contractor Accident Prevention Plan
- b) Implementation of the Contractor Environmental Protection Plan
- c) Implementation of the Contractor Quality Control Plan including Organization Chart
- d) Review of the Contractor Order of Work Plan
- e) Review of the Contractor Disposal Plan
- f) Review of the Contractor Survey Plan

- g) Review of Contractor Electronic Surveillance System**
- h) Review and discussion of Environmental Permit requirements including implementing turbidity testing**
- i) Review of the contract plans and specifications**
- j) Review of contract reporting requirements**
- k) Coordination of Contractor proposed crew boat landing sites including contract required signage locations and times of crew changes**
- l) Coordination/Compilation of Radio Frequencies and Cell Telephone Numbers of all parties and vessels**
- m) Discuss disposal of debris and obstructions**
- n) Review the latest before dredge surveys**

(2) Prior to commencement of the work and to traveling to the job site for the commencement of duty tour, the Inspector shall perform an inventory of required supplies, equipment, and other job-required materials to insure an adequate inventory is available throughout the contract performance period. Upon travel to job site, Inspector shall insure these items are taken to job site.

(3) Upon arrival at temporary duty (TDY) station, Inspector shall notify the Panama City Site Office of safe arrival at TDY location, and the location and telephone number of temporary quarters.

(4) Prior to commencement of actual work at the jobsite, the Inspector shall have the Contractor identify and demonstrate his dredge plant instrumentation, electronic surveillance equipment, electronic positioning, markings of open water disposal areas (including any avoidance areas), sounding equipment, layout of work and disposal areas, and adequacy of Contractor furnished computer workstation and software. The Inspector shall verify that these items are in compliance with the contract requirements. The Inspector shall notify the Panama City Site Office when the Contractor has met the contract requirements and is approved to start. The Inspector shall coordinate work related activities such as moving and relocating navigational aids with the United States Coast Guard (USCG).

(5) The Inspector shall perform periodic jobsite assurance conferences on QC/QA interrelationship of activity and effectiveness.

(6) The Inspector shall participate in the three-phase inspection process to assure that contractor is adequately conducting the required control processes. The Inspector shall attend all preparatory and initial inspections and will be totally familiar with all applicable contract requirements. Ensure that the contractor prepares minutes of each preparatory and initial inspection and includes them as a part of his daily QC report. The Inspector shall contact the Panama City Site Office and request check surveys after a representative portion of work has been accomplished.

(7) The Inspector conducts Government QA tests at the jobsite to assure acceptability of the ongoing work. The Inspector will perform a sufficient number of checks to verify CQC adequacy, procedures and results. QA testing and inspection will be conducted at unannounced intervals. The Inspector will verify the accuracy and calibration of equipment, assure correct positioning of the dredge during both dredging and disposal operations. The Inspector will perform a minimum of the following checks per daily shift:

- (a) Turbidity Testing – Twice daily, at least four hours apart. Inspector will immediately notify the Panama City Site Office of any violations.**
- (b) Verification of GPS positional tracking – Initially, the Inspector shall perform a check on each dredging and disposal run until the Inspector has an understanding and confidence in the Contractor’s system. Thereafter, a minimum of once per day.**
- (c) Verification of Project Depth - Initially, the Inspector shall perform a check on each dredging and disposal run until the Inspector has an understanding and confidence in the Contractor’s system. Thereafter, a minimum of once per day.**
- (d) Verification of Electronic Surveillance System - Initially, the Inspector shall perform a check on each dredging and disposal run until the Inspector has an understanding and confidence in the Contractor’s system. Thereafter, a minimum of once per day.**
- (e) Safety Inspections – Inspector shall perform an initial safety inspection upon receipt of the Contractor’s safety inspection checklists. Thereafter, the Inspector shall perform weekly safety inspections.**
- (f) Contract Deficiency Inspections - Inspector shall perform an initial contract deficiency prior to commencement of work. Thereafter, the Inspector shall perform weekly contract deficiency inspections.**

(8) The Inspector shall report by telephone daily to the Panama City Site Office and report of the progress of work and all other matters related to the administration of this contract.

(9) The Inspector shall prepare daily Quality Assurance (QA) reports and all other necessary QA documentation. These reports shall document contractor’s performance throughout the contract and shall document the activities performed by the Contractor and the Inspector during the course of CQC and QA performance.

(10) The Inspector shall review the Contractor daily Contractor Quality Control (CQC) reports, associated documentation, and attach to the daily QA reports. The Inspector shall provide to the Panama City Site Office turbidity test results within two days of collection. These will be sent by facsimile.

(11) The Inspector shall conduct labor interviews throughout the life of the contract and if violations are noted bring it to the attention of the Panama City Site Manager, so that immediate resolution can be sought.

(12) The Inspector shall coordinate with the Contractor requests for Government after dredge surveys.

(13) Upon completion of the dredging and disposal work, the Inspector shall insure that the Contractor has removed all equipment, materials, signage, debris, and other items from the job site and landings, and returned these to there condition prior to commencement of work.

(14) The Project Engineer shall insure that all turbidity reports are submitted to Planning Division, CESAM-PD-EC, Larry Parsons (telephone number 251-690-3139) on a weekly basis within seven days of collection.

(15) The Project Engineer shall travel to the jobsite a minimum of once per week during the course of work, visit the dredging and disposal locations, and verify compliance with contract requirements.

9. QUALITY ASSURANCE AFTER CONSTRUCTION:

To assure "Quality Assurance After Construction" the following steps will be implemented by the Site Manager or his representatives:

(1) The before and after dredge surveys shall be utilized to provide payment to the Contractor for work accomplished under the terms of this contract. To that end, the Panama City Site Manager will be the arbiter on all contractual payment matters.

(2) The Project Engineer shall insure that the after dredge report is transmitted to Planning Division, CESAM-PD-EC, Larry Parsons (telephone number 251-690-3139) as required by the permit.

**TERRENCE D. JANGULA
Panama City Site Manager**

Job Name
Location

Solicitation No.
CADD No.

EXAMPLE CONSTRUCTION QUALITY MANAGEMENT
PROGRAM COMPLIANCE ASSESSMENT

CONTRACT NO. **DACW29-0_-C-00**__

DATE of INSPECTION : _____, AREA OFFICE: _____

PROJECT :

Project Engineer:

% COMP @ OF _____ : __%, SCHEDULED : __%

Project QAR:

QA INSPECTION TEAM:

CA CONSTR. MANAGER : _____

PROJECT BRIEFING:

COMMENTS:

Did PE or QAR give a briefing, including:
description of work, major contract items,
percent scheduled and completed, projected
completion date, delays or problems
encountered, a **safety and occupational
health orientation briefing (SOH)**.

YES

**PERTINENT DOCUMENTS & REFERENCES ON FILE:
NOTICE OF CONTRACT AWARD**

YES

PRECONSTRUCTION CONFERENCE MINUTES

YES

a.

Contractor is notified that he will
be rated for his performance.

YES

b. Contractor is told the basis for
the performance rating.

YES

c. Contractor is provided with a blank
performance evaluation worksheet.

YES

d. Contractor warned of non-compliance
consequences.

YES

NOTICE TO PROCEED

YES

START WORK DATE

YES

MUTUAL UNDERSTANDING CONF MINUTES

YES

a. Three phase concept of quality management

YES

b. Defnbl. feature of work identified.

YES

c. Operational aspects of the Q.C. plan discussed.	YES	_____
d. Procedures for making changes to the Q.C. plan.	YES	_____
e. Contractor's responsibility for administering of Q.C. plan, including subcontractors and suppliers.	YES	_____
PREWORK SAFETY CONFERENCE MINUTES	YES	_____
a. Purpose and advantages of Safety Program	YES	_____
b. Contract clauses & special clauses of the spec's dealing with accident prevention and reporting requirements.	YES	_____
c. Local requirements for implementing Safety Program	N/A	_____
d. Control and coordination of the work and activities of subcontractors.	N/A	_____
e. Emphasis on requirements for conducting and documenting daily safety inspections.	YES	_____
f. Job Hazard Analysis	YES	_____
g. Specific requirements and contractor's proposal for the following :		_____
1. Dust control	N/A	_____
2. Coordination with others having operations at same location	N/A	_____
3. Arrangement of temporary construction buildings and facilities including his subcontractors.	YES	_____
4. Initial indoctrination and continued safety education of employees	YES	_____
5. Traffic control	N/A	_____
6. Environmental protection	YES	_____
7. Fire protection	YES	_____
8. Drills and procedures for handling emergencies	YES	_____
9. Personal protective equipment, medical care	YES	_____
10. Prevention and correction of deficiencies in APP actvts.	YES	_____

3 - PHASE INSPECTION COMPLIANCE

DEFINABLE FEATURE OF WORK: (-----)

PREPARATORY MEETINGS (Use documentation on QC Reports, QA Reports, Preparatory Inspection checklists, Initial Inspection checklists and discussions with the PE and QAR.)

24-HOUR NOTICE GIVEN	YES	_____
DATE HELD DOCUMENTED ?	YES	_____
MINUTES PREPARED AND RECORDED ?	YES	_____
ATTENDEES RECORDED ?	YES	_____
RESULTS OF INSPECTION DOCUMENTED ?	YES	_____
REQUIRED SUBMITTALS APPROVED ?	N/A	_____
P & S RQMTS CHECKED ?	YES	_____
MATERIALS COMPLY ?	YES	_____
EQUIPMENT APPROPRIATE ?	YES	_____
COMPLETED WORK COMPLIES ?	YES	_____
NO. AND TYPE OF PERSONNEL ?	YES	_____
CONTRACTOR READY?	YES	_____
PROCEDURES ESTABLISHED ?	YES	_____
REPORTS OF TESTS & RESULTS ?	N/A	_____
SAFETY (JHA) DISCUSSED ?	YES	_____

INITIAL INSPECTION (Definable Feature of Work: (-----))

24-HOUR NOTICE GIVEN ?	YES	_____
AGENDA PREPARED AND USED?	"	_____
DATE HELD DOCUMENTED ?	"	_____
DOCUMENTATION (QC REPORT OR OTHER)?	"	_____
ATTENDEES RECORDED ?	"	_____
RESULTS OF INSPECTION DOCUMENTED ?	"	_____
QUALITY ?	"	_____
QUANTITY ?	"	_____
EXTENT ?	"	_____
AGREEMENT REACHED ?	"	_____

FOLLOW-UP INSPECTIONS

OBSERVATIONS DOCUMENTED ?	YES
TESTS & RESULTS DOCUMENTED ?	YES
CQC SYSTEM WORKING?	YES
DOCUMENTATION COMPLETE ?	YES
DEFICIENCIES FOUND ?	
CORRECTIVE ACTION TAKEN ?	N/A
INITIATED BY THE CONTRACTOR ?	N/A

PERFORMANCE EVALUATION

PERFORMANCE EVALUATION WORKSHEET
filled out by Area Engineer at the
end of first three months of work?

Discussion of the evaluation with the
Contractor?

SUMMARY OF QAR DOCUMENTATION ANALYSIS

Weather Conditions :

Work Done :

CQC Activities :

QA Activities :

Instructions to Contractor :

Problems/Deficiencies :

Equipment Accountability :

Safety :

Environmental Protection :

ADDITIONAL COMMENTS or RECOMMENDATIONS :

PRE-WORK CONFERENCE GUIDE

1. Purpose

The following guide defines the process for conducting the pre-work conference. The purpose of the pre-work conference is to insure the Government that the contractor understands all of the terms of the contract. In addition to reviewing the project specifications, the Safety Plan, Environmental Plan, Schedule, Disposal Plan, Quality Control, and Surveying Plan are discussed.

2. Applicable Regulations and Guidance

This is a requirement by the contract to conduct pre-work conferences

3. Background and Discussion

The Pre-work is an important part of the Contracting process. After a contract has been awarded to the successful bidder a meeting can be scheduled with that contractor who is now part of the Project Delivery Team for that particular dredging project. It is also important that the Notice to Proceed is in progress and at times the NTP is issued at the pre-work.

4. Alternative Processes

This pre-work process guide applies to all dredging contracts: Rental, Unit Price, and IDIQ type contracts. For IDIQ contracts, a new pre-work conference must be accomplished for each unique task order. For each new unique task order, all required items identified in the pre-work clause must be discussed and the appropriate attendees invited.

The pre-work tends to be a “happy” time. Everyone is happy that the contract has been successfully awarded, and sometimes the potential issues aren’t discussed fully or potential problem areas are skirted.

Who attends?

Government:

Safety
Contracting
Environmental
Engineer from District
Site Project Engineer
Lead Inspectors
Contract Inspectors
Site Survey Specialist

Resource Agencies: May or may not be required depending on the State and the particular contract.

Local Sponsors:

Coast Guard: To address Aids to Navigation, etc.

Contractor:

Quality Control
Project Superintendent
Lead Dredge Specialists (Captain, Leverman)
Survey Specialist
Safety Specialist

In each dredging contract, general items are spelled out as to what will be discussed at the pre-work conference

Must cover responsibilities, i.e. contracting officer, administration issues

Attached is an example of a pre work memorandum. Prior to the pre-work the Site Manger or the Office engineer who will be conduction the pre work will prepare a 20 item checklist that will be routinely discussed at the pre-work. Item 21 of the memorandum will cover general remarks by the PDT. After the meeting the Office engineer will finalize the minutes of the Pre-work and request that the Principle Government Representative and the Principal Contracting Representative agree and sign the minutes.

NOTE: The Memorandum for Record for the pre-work conference should not be ambiguous. All discussed items should be clear and concise.

The MFR should be sent to all attendees for review.

After the NTP has been issued it is recommended that the QA inspector hold an **On-the-Job Preconstruction Safety Meeting**. The Purpose of the meeting is to assure the job is performed in the safest way possible and to hopefully prevent accidents from occurring. This should be accomplished by making all personnel aware of the Safety Provisions-Paragraph 1 of General Provisions Section 01100 of the contract specifications; EM 385-1-1, Sep. 1996; Contractor's Accident Prevention Plan; and any acts the Government considers unsafe. (Attachment 1 Pre-work Guide)

5. Recommended Process

CHECK LIST ITEMS TO DISCUSS

1. CONTRACTOR RELATIONSHIP TO CONTRACTING OFFICER:
2. GENERAL RELATIONSHIP OF SUB-CONTRACTOR
3. CORRESPONDENCE
4. EXPEDITING
5. GOVERNMENT FURNISHED PROPERTY:
6. PLANT AND WORK LAYOUT:
7. SERVICES FURNISHED BY THE GOVERNMENT:
8. SUBMITTALS AND SHOP DRAWINGS:
9. LAYOUT OF WORK:
10. SECURITY:

11. SCHEDULING AND COOPERATION WITH OTHERS:
12. PROGRESS CHART:
13. PAYMENTS:
14. VALUE ENGINEERING
15. CONTRACTOR'S QUALITY CONTROL:
16. LABOR PROVISIONS:
17. REPETITIVE CONSTRUCTION DEFICIENCIES
18. SMALL AND DISADVANTAGED BUSINESS UTILIZATION (SADBU):
19. SAFETY:
20. CLEAN-UP
21. GENERAL REMARKS:

6. Process Checklist

EXAMPLE RECORD OF PRECONSTRUCTION CONFERENCE

CONTRACT NO. DACW01-03-C-0016 (BID NO. DACW01-03-B-0003)

CONTRACTOR: Great Lakes Dredge and Dock Co.

DATE: May 16, 2003 LOCATION: Irvington Site Office

PERSONNEL PRESENT

GOVERNMENT

Mitch McDerment, OP-GW
Nathan Lovelace, OP-GW
Steve McKinley, OP-GW
Mike House, OP-GW
George Rush, OP-TN
Kelly McFarland, OP-TN
Melinda Bramlett, CT-C
Howard Ladner, PD-EC

CONTRACTOR

Dave Cizek, Greak Lakes Co.
William Moore, Greak Lakes Co.
Gary Bean, U.S. Coast Guard
BMCS Decuire, U.S. Coast Guard
MBI Rooney, U.S. Coast Guard
Thomas Raymond, U.S. Navy
David Zimmerman, U.S Navy
Steven Bukoski, U.S. Navy
Tom Sarros, U.S. Navy

ITEMS DISCUSSED

1. CONTRACTOR RELATIONSHIP TO CONTRACTING OFFICER: The Contracting Officer (KO) is Sue Sleights. A Contracting Officer is the only government person authorized to make changes in the contract requirements which cause a change to contract time and/or price. The ARCO is authorized to interpret and enforce the contract terms and

is not authorized to make changes in contract requirements which would cause a change to contract time and for price. SECT 00700 PARA 252.201-7000. From time to time during this work, the government will assign QA Inspectors who act with/for the ARCO in carrying out those associated duties. Those Inspectors are not authorized to make changes in the contract requirements which would cause a change to contract time and/or price. There is not an Administrative Contracting Officer assigned by the government under this contract work. If assigned, his/her authority is spelled out in contract. If the Contractor believes he has been given any instruction or order by any QA Inspector or ARCO, which would cause a change in contract time and/or price, the contractor shall immediately notify the Contracting Officer in writing, presenting all facts and particulars. The contractor should take no action to carry out such instructions or orders before receiving instruction or order from the Contractors Officer.

2. GENERAL RELATIONSHIP OF SUB-CONTRACTOR: The Corps will conduct contract business with the prime contractor only, through a company official or designated (in writing) representative. No Contract business will be conducted with a sub-contractor.

3. CORRESPONDENCE: (as is on the contract) U. S. Army Corps of Engineers, P. O. Box 2288, Mobile, Alabama 36628-0001. Any correspondence to come directly to the ARCO should have ATTN: OP-GW, Site Manager, Irvington Site Office, 7861 13th St., Irvington, AL 36544-2899.

4. EXPEDITING: No "expediting" will be done. The Contractor shall commence work under this contract within eight (8) calendar days after receipt of N.T.P. and shall complete all work within One Hundred Twenty (120) calendar days after receipt of N.T.P.

5. GOVERNMENT FURNISHED PROPERTY: There will be no G.F.P. incorporated into this work. There will be a government owned radio, hand receipted to a responsible contractor employee, for installation on the contractor's dredge plant for the duration of the work.

6. PLANT AND WORK LAYOUT: The contractor shall lay out his work from the government-established monumentation indicated on the drawings and/or as furnished during the contract life
REF. 01000-3, PAR 5. Any special plant layouts which could impact project users in any way will be reviewed to satisfaction with the affected responsible agents before any construction commences.

7. SERVICES FURNISHED BY THE GOVERNMENT: No specific services will be furnished to the contractor. The government shall conduct the original and final surveys and will make computations and acceptance decisions based on them.

8. SUBMITTALS AND SHOP DRAWINGS: SECT 00700-24 PAR 52.222-8 Payrolls and Basic Records; SECT 0700-70, PAR52.236-6, Superintendence by the Contractor; SECT 0700-72, PAR 52.236-13 Accident Prevention Plan; SECT 00700-73, PAR 52.236-15, Schedules for Construction Contract; SECT 00700-59, PAR 52.232-27, Payment

Certifications; SECT 00800-3, PAR 2, Work Percentage Breakdowns; SECT 01000-5, PAR 12.6, Radio Certification; SECT 00800-8, PAR 952.000-4414, Contractor's Quality Control Plan; SECT 01000-5, PAR 9, Pre Construction Conference Submittals; SECT 02500-7 PAR 7, Reports.

9. LAYOUT OF WORK: The Contractor shall layout his work from the Government-established ranges, gages and monumentation indicated on the drawings or otherwise furnished during the contract life. Such layout shall be at the effort and expense of the Contractor. The Contractor shall preserve and maintain all marks established by the Government. The Contractor shall furnish to the Contracting Officer, his technical layout data supporting all dredge positioning control utilized for this contract work. (REF. 00800-7, PARA. 952.000-4408.)

10. SECURITY: The Contractor shall provide appropriate security for all his personnel, plant, equipment and supplies while working under this contract.

11. SCHEDULING AND COOPERATION WITH OTHERS: The Government will not undertake to keep the channel free from normal traffic. The Contractor will be required to conduct the work in such a manner as to obstruct navigation as little as possible and to cooperate with passing traffic to such an extent as may be necessary to afford a safe, practicable passage. The Contractor shall maintain appropriate communication with project traffic during any hazardous conditions (inclement weather or other hazardous conditions). REF. SECT 01000-3, PAR. (d).

12. PROGRESS CHART: The Contractor shall, within five days after the work commences, prepare and submit for approval three copies of a practical schedule showing the order the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work. The schedule shall be in the form of a progress chart of suitable scale to indicate the percentage of work scheduled for completion by any given date during the period. This chart shall be updated monthly, as directed by the Contracting Officer, to show the actual progress of all work. REF. SECT 01000-6, PAR 11. If any phase of the contract work is not to be in a continuous manner, the Contractor shall furnish written explanation of his work plan to show connection of all work elements to completion.

13. PAYMENTS: The Government will make monthly progress payments as the work proceeds. The Contractor shall submit backup data (surveys and computations, invoices, etc.) for any progress payments requested. Along with each request for progress payments, the Contractor shall furnish a certification of payments to subcontractors and suppliers. (REF. CESAM Form 1151, Aug 90 and REF. SECT 00800-10, PAR 952.999-4072.

14. VALUE ENGINEERING: The Contractor is encouraged to develop, prepare, and submit Value Engineering Change Proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's. If the Contractor is seriously considering any VECP and requires additional information, it will be provided on notice to the A.R.C.O.

15. CONTRACTOR'S QUALITY CONTROL: REF. SECT 00800-8, PAR 952.000-4414. The Contractor shall establish a quality control system to perform sufficient inspection of all items of work, including that of his subcontractors, to ensure conformance to applicable specifications and drawings with respect to the materials, workmanship, construction, finish, functional performance, and identification. All compliance inspections shall be recorded on SAM Form 696. The contractor will provide quantity information in the daily reports that is based on actual "before-dredging" and "after-dredging" surveys, conducted and computed by the contractor. REF SECT 02500-7 PAR 7.

16. LABOR PROVISIONS: REF SECT 00700-24, PAR 52.222-8. The Contractor shall submit weekly payrolls showing record of all workers name, address, social security number, job classification, hourly rate of wage, actual hours worked, actual wages paid, and all deductions made.

17. REPETITIVE CONSTRUCTION DEFICIENCIES: If recurring deficiencies in an item or items indicate that the quality control system is not adequate, such corrective actions shall be taken as directed by the Contracting Officer.

18. SMALL AND DISADVANTAGED BUSINESS UTILIZATION (SADBU): This contract is applicable to SADBU requirements. If contract is applicable to these requirements, discuss the approved Contractor's SADBU Subcontracting Plan. Further discuss: the Mobile District's SADBU Specialist; Reporting requirements, SF 294 and SF 295 (copy furnished at this meeting); contract clause entitled Liquidated Damages-Small Business Subcontracting Plan; "good faith effort" in relation to SADBU PLAN; and the ACO's responsibilities reference evaluation of Contractor's "good faith effort" and compliance with his subcontracting plan.

19. SAFETY: The Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoiding work interruptions. The Contractor shall comply with all pertinent provisions of the EM 385-1-1. The Contractor shall report any event resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. This includes near misses. The initial reporting to the Government should occur immediately with as much detail that is available at the time of the incident so as to allow Government reporting requirements to be performed in a timely manor. Any additional information obtained by the contractor should be provided to the Government as obtained. The contractor shall submit a written accident report on ENG Form 3394 as soon as possible with all available information, including cause of accident and steps to prevent future accidents from occurring. A company representative must accompany the injured employee to the medical facility to manage the accident to a no lost time accident if possible. Light duty status should be offered to the affected employee if appropriate. Critical Lift Testing of Hoisting equipment will be conducted per EM 385-1-1. The Contractor shall submit a written proposal for implementing this phase of the contract. The Contractor's Plan shall incorporate all appropriate elements of the contract. REF. SECT 00700-72, PAR 52.236-13

20. CLEAN-UP: The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Upon completing the work, the Contractor shall leave the work area a clean, neat, and orderly condition satisfactory to the Contracting Officer. REF SECT 0700-72, PAR 52.236-12

21. GENERAL REMARKS:

A. Bulletin Board: Immediately upon beginning of work under this contract, the Contractor shall provide on the work site a weatherproof glass covered bulletin board for displaying the fair employment poster, wage rates, and safety plans, bulletins and posters. The bulletin board shall be located in a conspicuous place easily accessible to all employees and legible copies of the aforementioned data shall be displayed until work under this contract is completed. REF SECT 00800-2, PAR 952.000-4313

B. Performance Evaluation of Contractor: As a minimum, the Contractor's performance will be evaluated at the end of the Contract period. However, interim evaluation may be prepared at any time during contract performance when determined to be in the best interest of the Government.

C. A general discussion of the scope of work and the execution thereof followed:

- a) The contract Bid Opening was on the 11th of February 2003 with the contract being awarded on the 7th of March. The N.T.P. was issued on the 15th of April with the completion date set as the 13th of Aug 2003. The contractor assured everyone at the meeting that they would complete the project before the established date of Aug 13th 2003.
- b) Great Lakes will be using Clamshell # 53 with two dump scows: GL 61 (7,100 cu. Yds.) & GL 402 (5,000 cu. Yds.)
- c) The Coast Guard requested at least a 14-day notice for navigation aid removal or repositioning. It was noted in the contract that the contractor must provide a 21-day notice to the U.S.C.G.
- d) The Navy invited Great Lakes and Steve McKinnley to weekly meetings held on base that would cover any traffic for the week and also get input from Great Lakes concerning positioning in the channel while Navy vessels are passing.
- e) The Navy asked Great Lakes where the dredge would go during adverse weather and the contractor did not have a response but was working on finding a solution sometime next week.
- f) The representatives from the Navy asked the Coast Guard if all the nav aids would be replaced in there original positions after completion of the contract. The Coast Guard said they would take requests from the Navy, but that they would have to take into consideration everyone who uses the waterway.

- g) The Navy informed the contractor that the security status at this time is Bravo Minus. The Navy also stated that they would most likely need the entire channel for incoming and outbound traffic. The contractor had just come from a job with the same conditions and said that it would not be a problem.
- h) The contractor informed the Corps that they would have their submittals to the site office sometime around the 21st of May.
- i) The Corps did not have a safety representative at the meeting, but the contractor said he would provide the Corps the training and safety videos that are used for their employees.
- j) The contractor was reminded of the bulletin board on the dredge and the contract signs at the public boat launches.
- k) The contractor was informed that the Corps would use a staff gauge adjacent the job site for quantity surveys, but that if the contractor chose to, he could use auto-gauge # 22 if it was within 0.1 ft of the staff gauge.
- l) The contractor was reminded that they would provide a room, computer, and phone solely for the use of the Government inspector.
- m) The contractor was reminded that there will be no over-flow from the scows or dredge and that each scow will be checked for leakage throughout the contract.
- n) The contractor did not submit a disk with x,y,z,date,time in the meeting but will have one sometime before the dredge begins work.
- o) The contractor was reminded that data would be collected at the grab point, release point, every 5 minutes to the dump, and every minute while in the vicinity of the disposal area.
- p) Howard Ladner then informed the contractor of the changes in the environmental permit and what he expected to receive from the contractor during the contract.
- q) The amended permit will be given to the contractor as soon as it is completed.
- r) No payment for material placed outside the designated D/A and material must be removed and placed in the proper location.
- s) In a situation where the dump scow loses computer (tracking) capabilities, the contractor can complete the dump using his on-board navigation system. The contractor must record northings and eastings just as the tracking system would and cannot make another trip until the tracking system is operating properly.
- t) Howard Ladner also reminded the contractor the limits of 50 NTU for turbidity outside a 750 ft radius of the dredge or dump scow.
- u) Submittals of daily reports must be daily and accurate.
- v) Quantities on daily reports must be verified by daily surveys.
- w) All safety requirements such as “safety indoctrination”, and weekly, monthly meetings will be attended by the Corps inspector.

Principal Government
Representative

Principal Contractor
Representative

July 10, 2003

MEMORANDUM THRU

Area Engineer, Irvington site Office

C/OP. Div.

FOR C/OP. Div. ATTN: (Contract File)

SUBJECT: On-the-Job Preconstruction Safety Meeting, DACW01-03-C-0016, Pascagoula Navy Channel Dredging(Jackson County, Pascagoula Mississippi)

1. Meeting was held @ the staging area on the Port of Pascagoula property. Prime Contractor Great Lakes dredging

a. Contractor was represented by:

- (1). **Bill Moore**
- (2).
- (3).

b. Government was represented by:

- (1). **Steve Mckinley**, Project Inspector/QAR.
- (2).
- (3).

2. Purpose of the meeting is to assure the job is performed in the safest way possible and to hopefully prevent accidents from occurring. This should be accomplished by making all personnel aware of the Safety Provisions-Paragraph 1 of General Provisions Section 01100 of the contract specifications; EM 385-1-1, Sep. 1996; Contractor's Accident Prevention Plan; and any acts the Government considers unsafe.

3. SECTION 01100 – 1.0 SAFETY PROVISIONS.

a. Mr. Moore has a copy of EM 385-1-1, Sep. 1996. The safety provisions as specified herein refer to the September 1996 edition of EM 385-1-1.

b. 1.1 – ACCIDENT INVESTIGATION AND REPORTING. I informed Mr. Moore that particular attention should be given to Section 01.D of EM 385-1-1. Accidents shall be investigated and reports completed by the immediate supervisor of the employee(s) involved and reported to the CO or COR within one (1) working day after the accident occurs. Accident Reports and shall be submitted on ENG Form 3394, Sep. 1989. All data reported must be complete, timely and accurate. A follow-up written report shall be submitted when the estimated lost-time days differs from actual lost-time days.

c. 1.2 – ACCIDENT PREVENTION PROGRAM. Once Contractor's Plan is reviewed and approved by the CO it shall be used in accordance with its contents and Section 00700 – Contract Clauses, Paragraph 69, Clause 52.326-13, (Nov. 1991). I made reference to Sections 1 and 19.A.06 of EM 385-1-1. Program is subject to revisions and up dates as requested by CO.

d. 1.3 – DAILY INSPECTIONS. I informed Mr. Moore that according to Section 01.A.08 of safety manual it is the Contractor's responsibility to perform daily inspections to ensure compliance with contract specifications. Contractor's personnel shall conduct and document inspections on the form submitted with the Accident Prevention Plan and reports shall include, as a minimum, the following:

- (1). Phase(s) of construction underway during inspection(s).
- (2). Location(s) of area(s) where inspection(s) were made.
- (3). Results of inspection(s), including nature of deficiencies observed and corrective action taken or to be taken, date, and signature of person responsible for reports contents.

SUBJECT: On-the-Job Preconstruction Safety Meeting, DACW01-03-C-0016, Pascagoula Navy channel dredging

e. 1.4 – SAFETY SIGN. I informed Mr. Moore that the Contractor should furnish, erect, and maintain a sign at the site, as located by the CO. Sign shall conform to the requirements of this paragraph and the drawing included at the end of these General Provisions. The sign may be half size. The sign shall be erected as soon as practicable, but not later than 15 calendar days after the date established for commencement of work. The data required shall be kept current.

f. 1.5 – MEANS OF ESCAPE FOR PERSONNEL QUARTERED OR WORKING ON FLOATING PLANT. Refer to the following paragraphs of Section 19 of EM 385-1-1:

(1). **19.A.05 I.** Doors shall be capable of being opened from either side and provided with positive means to secure in both open/closed position.

(2). **19.A.05 J.** Escape hatches and emergency exits shall be marked on both sides with letters, at least 1 inch high, stating, "Emergency Exit – Keep Clear".

(3). **19.B.04 B.** Two means of escape shall be provide for normal work, assembly, sleeping and messing areas.

(4). **19.B.04 C.** Means of access will be maintained safe and functional.

g. 1.6 – EMERGENCY ALARMS, SIGNALS AND DRILLS. Referred to the following paragraphs of Section 19 of EM 385-1-1:

(1). **19.A.04 A.** Plans shall be prepared for response to emergencies such as fires, sinking, flooding, severe weather, man overboard, hazardous material incidents (refer to Section 01.E of EM 385-1-1).

(2). **19.A.04 B.** Station bill(s), setting forth the special duties and the duty station for each crewmember for various emergencies, shall be prepared and posted in conspicuous locations throughout the plant(s).

(3). **19.A.04 C.** Each crew member shall be given a written description of emergency duties and become familiar with the plant(s) emergency signals.

(4). **19.A.04 G.** Emergency lighting and power systems shall be operated and inspected at least monthly.

(5). **19.A.04 G (2).** Storage batteries for emergency lighting and power systems shall be tested at least once every 2 months.

(6). **19.A.04 H.** A record of all drills and emergency checks, including any deficiencies noted in equipment and corrective action taken, shall be made in the station log.

(7). **19.A.05 F.** General alarm systems shall be installed and maintained on all floating plant where it is possible for either a passenger or crew-person to be out of sight or hearing from any other person.

(8). **19.A.05 F (1).** Where general alarm systems are used, they shall be operated from the primary electrical system with standby batteries on trickle charge, so that they will automatically furnish the required energy during an electrical system failure.

(9). 19.A.05 F (2). A sufficient number of signaling devices shall be placed on each deck so that they can be heard above any normal background noise and from any point on each deck.

(10). 19.A.05 F (3). All signal devices shall be so connected that actuation can occur from at least one strategic point on each deck.

(11). 19.A.05 H. Smoke alarms are required for all living quarters of floating plants, and if wired, should use the same electrical system as that used for the electrical alarms.

(12). 19.A.05 F (1). Where general alarm systems are used, they shall be operated from the primary electrical system with standby batteries on trickle charge, so that they will automatically furnish the required energy during an electrical system failure.

(13). 19.A.05 F (2). A sufficient number of signaling devices shall be placed on each deck so that they can be heard above any normal background noise and from any point on each deck.

(14). 19.A.05 F (3). All signal devices shall be so connected that actuation can occur from at least on strategic point on each deck.

(15). 19.A.05 H. Smoke alarms are required for all living quarters of floating plants, and if wired, should use the same electrical system as that used for the electrical alarms.

(16). 1.6.3 DRILLS. Referred to Section 19.A.04e of EM 385-1-1:

(a). 19.A.04 A. Plans shall be prepared for response to marine emergencies such as fire, sinking, severe weather, man overboard, hazardous material incidents, etc. Section 01.E of EM 385-1-1.

(b). 19.A.04 B. A station bill, setting forth the special duties and the duty station of each crewmember for various emergencies, shall be prepared and posted in conspicuous locations throughout the vessel.

(c). 19.A.04 E. On all floating plant which have a regular crew or on which people are quartered, the following drills shall be held at least monthly during each shift (unless the vessel is required, under USCG regulations, to be drilled more frequently): **abandon ship/boat drills, fire drills and person overboard or rescue drills.**

(d). 19.A.04 E (1) - First Drills. Shall be conducted within 24-hours of the vessel's occupancy (arrival on job site) or commencement of work.

(e). 19.A.04 E (2) - Night Drills. Where crew are employed or quartered at night, every fourth (4th) set of drills shall be conducted at night; the first set of drills shall be conducted within the first (1st) two weeks of the vessel's occupancy (arrival on job site).

h. 1.7 – HURRICANE PLAN:

(1). 06.J.01. When there are warnings or indications of impending weather (heavy rain, damaging winds, tornadoes, hurricanes, floods, etc.) conditions shall be monitored and appropriate precautions taken to protect personnel and property.

i. 1.8 – GROUND FAULT PROTECTION (Ground Fault Circuit Interrupters). All electrical equipment used on this contract shall be equipped in accordance with EM 385-1-1, Section 11.C.05. Refer to the following paragraphs from Section 11 of EM 385-1-1:

(1). 11.C.01. All electrical circuits shall be grounded in accordance with the NEC and the NESC, unless otherwise noted in EM 385-1-1.

(2). 11.C.01 B. A multi-conductor cord having an identified grounding conductor and a multi-contact polarized plug-in receptacle shall ground portable and semi-portable electrical tools and equipment.

(3). 11.C.01 D. Tools protected by an approved system of double insulation, or its equivalent, need not be grounded: double insulated tools shall be distinctly marked and listed by a nationally recognized testing laboratory.

(4). 11.C.04 A. The GFCI equipment shall be calibrated to trip within threshold values of 5mA, +/-1mA, as specified in Underwriters Laboratory (UL) Standard 943.

(5). 11.C.04 F. GFCI's may be easily affected by some equipment, in these instances and on an exception basis, an assured equipment grounding conductor program in accordance with Appendix D of EM 385-1-1 is acceptable in lieu of GFCI's, if the exception is documented on an activity hazard analysis and documents: the conditions, or need for exception. Implementation of the requirements of the assured equipment grounding conductor program.

(6). 11.C.04 G. For generators meeting the grounding exceptions of NEC 250-6, the GFCI requirements are not generally applicable

j. 1.9. – COMPREHENSIVE HAZARD COMMUNICATION PROGRAM.

The Contractor shall develop, implement, and maintain at the workplace a written, CHC Program (refer to Section 01.B.04 of EM 385-1-1) that includes identification of potential hazards as prescribed in 29 CFR 1910.1200 and/or 1926.59:

(1). **01.B.04 A.** Training (to include potential safety and health effects from exposure), labeling, current inventory of hazardous chemicals on site, and the location and use of material Safety Data Sheets (MSDS).

(2). **01.B.04 B.** Whenever hazardous substances are brought onto the jobsite, all employees will be advised of information in the MSDS(s) for the substance(s).

(3). **01.B.05 A.** The employer shall provide training in handling emergency situations that may arise in the activities or use of equipment on the jobsite.

(4). **01.B.05 B.** All persons who may have occasion to use emergency and rescue or life saving equipment shall be familiarized with the location of equipment, trained in the proper use of equipment, the equipment capability and limitations, and be medically qualified for use of equipment.

k. 1.10 – CONTROL OF HAZARDOUS ENERGY. Contractor shall develop, implement and maintain at the workplace a written control of hazardous energy (**lockout/tagout**) system. Refer to Section 12 of EM 385-1-1:

(1). **12.A.01.** Before an employee performs any servicing or maintenance on any system where the unexpected energizing, start-up, or release of kinetic energy could occur and cause injury or damages, the system shall be isolated in accordance with the requirements of Section 12 of EM 385-1-1: personnel and resources shall not be considered protected until hazardous energy control procedures have been implemented.

(2). **12.A.03.** A preparatory control inspection, with USACE and Contractor personnel, shall be conducted to ensure that all affected employees understand the energy hazards and the procedures for their control.

(3). **12.A.03 A.** When energy control procedures affect both USACE and Contractor's personnel, all personnel shall participate in the preparatory inspection and the preparatory meeting shall document the following:

(a). Time and date of meeting.

(b). Subject matter discussed.

(c). A list names of person in attendance.

(4). 12.A.04. Only authorized employees shall perform lockout and Tagout procedures.

(5). 12.A.05. All employees affected by the Lockout or Tagout shall be notified, before and upon completion of the application and removal of the Lockout and Tagout devices.

(6). 12.B.01 A. Each authorized employee shall receive training in the recognition of hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods and means for energy isolation and control.

(7). 12.D.01. Lockout and Tagout devices:

(a). 12.D.01 A. Shall be capable of withstanding the environmental to which they are exposed for the maximum period of time the exposure is expected.

(b). 12.D.01 B. Shall indicated the identity of the employee applying the device.

(c). 12.D.02. Lockout devices shall be substantial enough to prevent the removal without the use of excessive force or unusual techniques (i.e., use of bolt cutters).

(d). 12.D.03. Tagout devices shall meet the following additional requirements:

(1). 12.D.03 A. Shall have a standardized (within a project) print and format.

(2). 12.D.03 B. Shall be constructed and printed so that exposure to weather conditions, wet or damp, or corrosive environments will not cause the tag to deteriorate or the message to become illegible.

(3). 12.D.03 C. Tagout devices shall be attached by means which are: nonresuable; substantial enough to prevent inadvertent or accidental removal; attachable by hand; self-locking; non-releasable; with a minimum unlocking strength of not less than 23-kg (50-lbs); and have the basic characteristic of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

(e). 12.D.03 D. Warn against the hazardous condition resulting from system energization and include a legend such as: "**DO NOT START**", "**DO NOT OPEN**", "**DO NOT CLOSE**", "**DO NOT ENERGIZE**", "**DO NOT OPERATE**".

I. 1.11 – RADIATION. Refer to Section 06.E of EM 385-1-1. If a production meter that uses nuclear materials is being used aboard the dredge, Contractor shall perform the following requirements:

(1). The production meter nuclear device system designer and installer shall be qualified in these fields of expertise by the Nuclear Regulatory Commission (NRC).

(2). Contractor shall obtain licensing and training as required by the NRC for personnel aboard the dredge for the use of those components of the production meter containing or are affected by the nuclear source.

(3). Contractor shall implement a nuclear device awareness program as required by the NRC for all personnel aboard the dredge not directly involved in the activities of the nuclear device.

(4). Contractor shall submit a nuclear device safety plan to the Government within 24-hours after receipt of Notice to Proceed by the Contractor.

(5). While a nuclear device is present aboard the dredge, contractor shall strictly adhere to all applicable NRC rules and regulations.

m.1.12 – EQUIPMENT OPERATOR AUTHORIZATION. Contractor shall submit a list of designated personnel qualified and authorized to operate machinery and mechanized equipment in accordance with Section 16 A of EM 385:

(1). 16.A.02 A. All machinery and equipment shall be inspected daily (when in use) to ensure safe operating conditions. The employer shall designate competent persons to conduct the daily inspection and tests.

(2). 16.A.02 B. Test shall be made at beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition and that all required safety devices are in place and functional.

n. 1.13 - CRANE/DERRICK AND DRAGLINE CERTIFICATION. Contractor shall submit a copy of certification and performance test in accordance with Section 16 C of EM 385-1-1:

(1). 16.C.02. Every crane shall have the following documents with them at all times they are to be operated:

(a). A copy of the operating manual developed by the manufacturer for the specific make and model of the crane; a copy of the operating manual for any crane aids with which the crane is equipped.

(b). The load rating chart for the crane, which shall include:

(1). The crane make and model, serial number and year of manufactured.

(2). Load ratings for all crane operating configurations, including optional equipment.

(3). Recommended reeving for the hoist line.

(4). Operating limits in windy or cold weather conditions.

(c). The crane's log book which shall be used to record operating hours and all crane inspections, tests, maintenance and repairs. The log shall be updated daily as the crane is used and shall be signed by the operator and supervisor; service mechanics shall sign the log after conducting maintenance or repairs on the crane.

(2). 16.C.04. Operator designation.

(a). Qualified operators may only operate cranes and derricks. Only those operators qualified to operate a particular type of crane or derrick may operate that type of machinery: proof of qualification shall be in writing.

(3). 16.C.07. Cranes and derricks shall be operated, inspected, tested and maintained in accordance with the manufacturer's operating manual for that crane or derrick.

(4). 16.C.08. A hazard analysis shall be developed and implemented for crane set-up and set-down procedures (mobilization, assembly or erection, dismantling and demobilization).

o. 1.14 – EMERGENCY DIVE PLAN. Contractor shall submit a plan in accordance with Section 30 of EM 385-1-1:

(1). **30.A.01.** Diving shall not be utilized as a work method if the work objective can be safely and efficiently accomplished by other means, e.g., using remote controlled television systems in lieu of divers.

(2). **30.A.03.** Any failure to meet the requirements of Section 30 of EM 385-1-1, shall be cause for rejection or cessation of operations.

(3). **30.A.04.** All contract diving operations shall be performed in accordance with Section 30 EM 385-1-1.

(4). **30.A.05.** The USACE Command, at their discretion, may elect to implement and enforce more stringent diving requirements than stated in Section 30 of EM 385-1-1, but under no circumstances will the operational requirements be less than contents of Section 30 of EM 385-1-1.

(5). **30.A.08.** Each dive team member shall have a current nationally recognized certification in first aid and CPR. First aid training should include the use of oxygen systems as required in Section 30 of EM 385-1-1.

(6). **30.A.11.** The Contractor shall develop and maintain a safe practices manual that encompasses the Contractor's diving program.

(7). **30.A.12.** The Contractor shall submit verification of satisfactory completion of medical fitness examinations for each dive team member who is, or is likely to be, exposed to hyperbaric pressure.

(8). **30.A.12 B.** Each diver shall be reexamined after an injury requiring medical attention or illness requiring hospitalization.

p. THE FOLLOWING GENERAL SAFETY PROVISIONS WERE DISCUSSED, REFER TO EM 385-1-1:

(1). **19.A.06 G.** Fuel and lubricant containers and tanks shall be diked or curbed to contain the tanks contents in case of leakage in accordance with NAVFAC DM-22, Petroleum Fuel Facilities. In lieu of a dike or curb, other means complying with USCG requirements in 46 CFR Parts 64, Marine Portable Tanks, and 98.30, Handling and Storage of Portable Tanks, may be used.

(2). **19.A.06 H.** Fuel oil transfers for floating plant shall be in accordance with the provisions of USCG regulations, 46 CFR Parts 155 and/or 156. Referred to LMV 414, Fuel Oil Transfer of Activity Hazard Analysis of the Contractor's Accident Prevention Plan, for proper fueling procedures.

- (3). **09.B.12.** Handling, by hand, of all flammable and combustible liquids shall be in safety containers with flame arresters.
- (4). **09.E.01.** Portable fire extinguishers shall be provided where needed and inspected and maintained in accordance with Tables 9-1 and 9-2 on pages 122 and 123 of EM 385-1-1.
- (5). **09.A.05.** All sources of ignition shall be prohibited within 50-feet of operations with a potential fire hazard and fire hazard areas shall be conspicuously and legibly posted with signs saying: **“NO SMOKING OR OPEN FLAME”**.
- (6). **09.A.06.** Smoking shall be prohibited in areas where flammable, combustible, or oxidizing materials are stored: **“NO SMOKING OR OPEN FLAME”** signs shall be posted in these areas.
- (7). **09.B.16 B.** Storage cabinets for paints and flammable items shall be labeled in conspicuous lettering: **“FLAMMABLE – KEEP FIRE AWAY”**.
- (8). **05.B.01.** Personnel shall be provided with eye and face protection equipment, as outlined in Table 5-1 page 27 of EM 385-1-1; when machines or operations present potential eye and face injury from physical, chemical or radiation agents.
- (9). **05.C.07.** Noise hazard area (in which sound-pressure levels exceed limits specified in paragraph 05.C.01 of EM 385-1-1) shall be posted with caution signs indicating hazardous noise levels and requirements for hearing protection.
- (10). **05.D.01.** Personnel working in or visiting hardhat areas shall be provided with and required to wear protective headgear.
- (11). **05.I.01.** Type III, Type V, or better USCG approved International Orange personal device (PFD) shall be provided too and properly worn by all persons where there is a potential drowning hazard.
- (12). **05.A.09 B.** Footwear providing protection against impact and compressive forces, conduction hazards, electrical hazards, and sole puncture shall meet the applicable requirements ANSI Z41: footwear providing protection against impact and compression hazards shall be rated as I75 and C75.
- (13). **01.E.04.** Emergency telephone numbers and reporting instructions for ambulance, physician, hospital, fire, and police shall be conspicuously posted at the work site.

(14). 03.B.01 & 03.B.02. First Aid Kits. Unless otherwise specified, where kits are required, kits shall be 16-unit (containing 16 unit-type first aid packages). Shall comply with ANSI Z308.1. Shall be easily accessible to all personnel. Each item therein shall be maintained sterile. The Contractor shall check contents prior to their utilization and at least weekly when work is in progress to assure that expended items are replaced

(15). 07.A.01. While work is in progress, offices, facilities, access ways, working areas, etc., shall be lighted by at least the minimum light intensities specified in Table 7-1 on page 84 of EM 385-1-1.

(16). 11.F.03. Battery Storage and Handling. Racks shall be substantial and shall be treated to make them resistant to electrolyte. Floors shall be of acid resistant construction or protected from acid accumulations. Facilities for quick drenching of the eyes and body shall be provided for emergency use within 25-feet of battery storage areas. Personnel protective equipment shall be used as prescribed in Section 5 of EM 395-1-1. When charging batteries, vent caps shall be kept in place to avoid electrolyte spray and care shall be taken to assure vent caps are functioning properly (no cracks, or broken caps, etc).

(17). 10.D.07. Fuel gas piping shall be provided with protective equipment designed to prevent: backflow of oxygen into the fuel gas supply system; passage of a flash back into the fuel gas supply system; excessive back pressure of oxygen into the gas supply system.

(18). 13.A.03. Reciprocating, rotating, and moving parts of equipment shall be guarded, if exposed to contact by personnel or otherwise creates a hazard.

(19). 14.C.02. All stairways, passageways, gangways and access ways shall be kept clear of materials, supplies and obstructions at all times, and also maintained safe and orderly.

(20). 21.H.01 A. thru 21.H.02. Personnel Hoist. Design, construction, installation or erection, operation, inspection, testing and maintenance shall be in accordance with the manufacture's recommendations and the applicable ANSI standard. Shall comply with applicable requirements from Section 16 of EM 385-1-1, Machinery and Mechanized Equipment. Hoist used in bridge tower construction shall be approved by a registered engineer and erected under the supervision of a registered engineer competent in this field. A copy of a manbasket construction (see attached) was presented to Contractor.

4. I instructed Mr.Moore to refer to Safety and Health Requirements manual. EM 385-1-1, Sep., 1996, and adhere to proper safety requirements as listed therein.

5. I informed Mr. Moore that the Government will continuously monitor the job site to assure adherence to safety provisions of the contract.

STEVE MCKINLEY

Project Inspector/QAR

Mobile District Irvington site office

CF:
Proj. Engr. (Lovelace)
Proj. Insp. (Mckinley)
Contractor (Great Lakes)

SUBJECT: On-the-Job Preconstruction Safety Meeting, DACW01-03-C-0016,
Pascagoula Navy channel dredging

To: Area Engineer, Irvington site office

FROM: Great Lakes Dredging and Dock Co.

I **(do) (do not)** concur with the minutes as written. Exceptions, if any, are noted below.

Dock Co.
C-0016

Great Lakes Dredging and
Contract Number **DACW01-03-**

NAME

TITLE

DATE

LESSONS LEARNED GUIDE

1. Purpose

The following guide defines the process for lessons learned for both new work and maintenance projects. For dredging projects, lessons learned encompass all phases of a dredging project from initiation, design, award, and construction.

2. Applicable Regulations and Guidance

ER 1110-1-8159 DRCHECKS
Command Letter CORPS-WIDE LESSONS LEARNED APPROACH, 9 April 2001

3. Background and Discussion

In order to improve our service to our customers and stakeholders, it is imperative to review our actions on a regular basis, evaluate how well we have the goals and objectives of that action, and to provide lessons learned to others in the District and Corps who may benefit. The Corps of Engineers Corporate Lessons Learned (CLL) approach consists of four steps: (1) capturing lessons learned, (2) evaluating lessons learned, (3) sharing lessons learned, and (4) sun setting lessons learned.

4. Alternative Processes

Currently, Engineering Division and Construction Division maintain a Mobile District lessons learned system. Suggested lessons learned are submitted to either the Chief of Design Section in Engineering Division, or to the Assistant Chief of Construction Division for their consideration. If deemed appropriate, these two insert the lesson learned into the database for use by designers and construction personnel for future jobs.

ER 1110-1-8159 directs that the use of DRCHECKS is mandatory for all military and civil projects requiring design review. DRCHECKS is an automated, easy-to-use design quality tool that empowers project teams and individual users to improve design quality through an integrated web-based business process. DRCHECKS contains an embedded Corporate Lessons Learned (DQLL) Module -- as the Corps' official project review, lessons learned, and feedback system. DQLL provides an integrated way to capture repetitive deficiencies identified during the review process.

Implementation of DRCHECKS into our Dredging PMBP will require each Project Manager to learn DRCHECKS and to set-up DRCHECKS for each new project. Implementation will also require each PDT team member to learn how to input comments into the program, and to review and respond to ITR comments.

5. Recommended Process

For all dredging projects in the Mobile District, the Design Review and Checking System (DRCHECKS) and the Design Quality Lessons Learned Repository (DQLL) will be used for annotating review comments as well as documenting lessons learned.

The Point of Contact (POC) for dredging lessons learned is the Mobile District Dredging Project Manager, currently Mr. Carl Dyess or Chief, Navigation Section, currently Mr. Paul Bradley. Each team member; designers, engineers, field staff, project managers, environmental specialists, customers, and support staff such as contracting real estate and office of counsel; may submit lessons learned comments through DQLL. All dredging lessons learned submitted to DQLL will be reviewed by the POC for dredging lessons learned.

When a team member submits a lessons learned, they will receive an e-mail from the POC stating the their lessons learned has been received. Once an action has occurred, either denial or approval, they will receive another e-mail telling them the result, the reviewers name and their comments.

At the project kick-off meeting, the Project Manager, from the existing DRCHECKS database, will provide all available lessons learned that are applicable to the dredging job.

Lessons learned is continuous process. At any time, from project initiation to construction, lessons learned can be entered to DQLL.

6. Process Checklist

No specific checklist is required for entering lesson learned into DQLL, although the following Power Point training presentations are included for team member orientation:

Adding Lessons Learned to the Dr Checks system:



Add Lessons
Learned.ppt



Lessons learned
search.ppt

Searching Lessons Learned in the Dr Checks System:

Responsibilities:

- The Project Manager (PM) for each dredging job is responsible for not only insuring that DRCHECKS be used for ITR & BCOE, but also for encouraging team member to input valid lessons learned into DRCHECKS through DQLL.
- Each Dredging job PDT team member is responsible for providing lessons into DQLL.
- The Mobile District Dredging Project Manager/ or Chief Navigation Section is responsible for reviewing all submitted dredging lessons learned for inclusion in the dredging lessons learned database.

